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ABSTRACT

This annotated bibliography lists books, books in series, books for teacher use, reference books, supplementary texts, filmstrips, study prints, videocassettes, and videocassettes in series. The materials listed may be used for enrichment, leisure, and other purposes by as many students in as many grades as feasible. Such use will ensure that students performing at, above, and below their grade placement have access to a wide variety of materials to meet their personal needs and interests. Included for each entry are a complete citation, number of pages, cost, availability, grade levels, articulation information with the Competency-Based Curriculum for North Carolina, and an annotation. A directory of publishers for use with this list is provided. (CW)

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Advisory List of Instructional Media

SCIENCE

To facilitate the use of materials on this list, the COMPETENCY-BASED CURRICULUM has been used to identify competency goals (CG) to which these materials relate most closely. The grade range at the end of each bibliographic entry (e.g., 5-8) indicates the span of grades for which the materials hold general interest. Following that grade range are specific grades and competency goals to which the materials relate most directly (e.g., Grade 5: CG 1). This information does not imply that the use of the materials is limited to the specific grades and competency goals cited. Instead, the materials may be used for enrichment, leisure, and other purposes by as many students in as many grades as feasible. Such use will ensure that students performing above and below their grade placement have access to a wide variety of materials to meet their personal needs and interests.

All titles on this bibliography are currently available for purchase. Prices shown are those quoted by publishers and producers but do not include postage and are subject to change. These materials are on display for examination in the Media Evaluation Center in Raleigh.

PLEASE DO NOT ORDER ITEMS ON THIS LIST FROM MEDIA EVALUATION SERVICES. Publishers and producers are listed at the end of this bibliography. An abbreviated or code name for the publisher or producer appearing in the bibliographic entry on this list appears in the DIRECTORY where the complete address follows the code name.

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BOOKS

Aaseng, Nathan. BETTER MOUSETRAPS: PRODUCT IMPROVEMENTS THAT LED TO SUCCESS. 80 p. $10.95. Lerner Pubns., 1989. (ISBN 0-8225-0680-7) Grades 6-10. Grade 6: CG 1. Grade 7: CG 1. Grade 8: CG 1. Physical Science: CG 1

Biographical sketches of eight people who applied their Franklinesque creativity and industriousness to the improvement of commercial products will intrigue readers as they discover the inspiration and doggedness which produced Gillette razors, Otis elevators, Eastman's Kodak camera, Royce's

automobile, Best and Holt's Caterpillar machines, Rudkin's Pepperidge Farm breads, Tupper's storage ware, and Zamboni's ice rink equipment. Depicting models of hard work, determination, self-confidence, and success, these tales will whet young readers' imaginations and inspire tinkers and crafters to pursue their own creative ideas. Black-and-white photographs and patent drawings enliven prose descriptions about the designers themselves, their products, and original blueprints. This is an excellent book for browsers generally and fascinating for those with special interests in scientific and mechanical inventions.

Armbruster, Ann, and Elizabeth A. Taylor. TORNADOES. 64 p. $10.90. Watts, 1989. (ISBN 0-531-10755-8) Grades 3-8. Grade 4: CG 4. Grade 7: CG 8. Grade 8: CG 1

With the recent history of tornadoes devastating states outside "Tornado Alley" (Kansas, Missouri, Oklahoma, and Texas), this book on the destructive phenomenon will draw readers and browsers in many areas of the nation. Succinctly, the text describes and illustrates tornadoes in words, photographs, artwork, and diagrams, explains how they work, analyzes their components and weather conditions which spawn them, dispels myths, lists important facts, and goes to some lengths to show students, in words and drawings, how to protect themselves wherever they might be--at school, at home, in a house trailer, in an automobile, in a mall, outdoors. The sentence structure and vocabulary are straightforward and unalarmist. An excellent closing chapter describes numerous science projects and related activities for both classes and individuals that range from preparing traditional reports and book reports to creating dust devils, liquid tornadoes in mayonnaise jars, and experiments using milk jugs and water hoses to simulate the crushing force of air pressure. An excellent bibliography and an index assist interested students and teachers.

Arnold, Caroline. CHEETAH. 48 p. $12.88. Morrow, 1989. (ISBN 0-688-08144-4) Grades 3-6. Grade 3: CG 1. Grade 4: CG 2

Damara, a tame cheetah in the natural habitat exhibit at Wildlife Safari in Winston, Oregon, is the focus of much of this description of a cheetah's life. Arnold also discusses the history of the cheetah as a species, physical characteristics of this member of the cat family, mating in the wild and in captivity, the growth of a cheetah cub, eating habits, and other behavior. The cheetah's status as an endangered species is also covered, and an index completes the book. Excellent color photographs by Richard Hewett show the cheetah's beauty and are large enough to use in a group discussion. This visually appealing, informative selection may be especially appropriate in collections that support zoo field trips and reports on animals.

Arnold, Caroline. DINOSAURS DOWN UNDER AND OTHER FOSSILS FROM AUSTRALIA. 48 p. $14.95. Clarion Bks., 1990. (ISBN 0-89919-814-7) Grades 4-8. Grade 5: CG 4. Grade 8: CG 4

Students reading this book will have a unique opportunity to look behind the scenes as a natural history exhibit of prehistoric Australian fossils is prepared for display. The author follows the museum staff as they plan the exhibit, construct display platforms and signs, oversee the arrival of the crated fossils, and painstakingly unwrap and display each object. Detailed information is provided about many of the animals represented by the Australian exhibit, including ancient fish, amphibians, reptiles, birds, and mammals. Specific attention is given to the variety of marsupials found in

Australia and to theories of shifting continental plates. Color photographs by Richard Hewett provide closeup view of the fossils and of the work of the museum staff. Some portions of the text dealing with the types of animals are quite detailed and include vocabulary that may be difficult for poor readers, although phonetic spellings are included. Maps depicting the movement of Australia's landmass to its current location and an index are provided. The broad scope of content could have been clarified by the inclusion of individual chapters. This selection would be most appropriate as a supplemental book for individual study or as an introduction to the unique prehistoric animal life of Australia. It would also be useful in a study of museum careers.

Arnold, Caroline. HIPPO. 48 p. $12.88. Morrow, 1989. (ISBN 0-688-08146-0) Grades 3-6. Grade 3: CG 1. Grade 4: CG 2

Doodles, a baby hippo, lives at the San Francisco Zoo with his parents. In the course of reading about Doodles and his life at the zoo, readers learn about the physical characteristics, habitat, eating habits, and growth patterns of the hippopotamus. Also explored in some detail are the lives of these animals in the wild. Superb color photographs by Richard Hewett will fascinate readers and make these unique animals more lovable and attractive than one would think possible. An index makes this comprehensive look at the hippo appropriate for research as well as supplementary reading, and many youngsters will simply be glad to discover the wonder of this happy combination of words and pictures.

Arnosky, Jim. A KETTLE OF HAWKS AND OTHER WILDLIFE GROUPS. unp. $13.88. Lothrop, 1990. (ISBN 0-688-09280-2) Grades 2-5. Grade 2: CG 1. Grade 3: CG 1. Grade 4: CG 2. Grade 5: CG 5

Children learn that names of animal groups can reveal much about their social behavior and habitats in simple verbal summaries and lovely watercolors of six wildlife groups: a kettle of hawks, a swarm of bees, a colony of ants, a school of fish, a cloud of tadpoles, and a gaggle of geese. Jim Arnosky's soft-toned illustrations, accurate but not anatomically specific, aim to stimulate the young reader's imagination. Thus they harmonize with the reflective, appreciative tone of the text and the haiku-like verse introduction to each section of animals. This one provides enrichment and a springboard for discussion and further investigation into the group names of animals not included here.

Asimov, Isaac, and Frank White. THINK ABOUT SPACE: WHERE HAVE WE BEEN? WHERE ARE WE GOING? 140 p. $14.85. (0-8027-6766-4) $5.95 paper. (ISBN 0-8027-6767-2) Walker & Co., 1989. Grades 8-12. Grade 8: CG 5. Physical Science: CG 1. Earth Science: CG 10

This overview of space exploration starts with ancient sky watchers, moving on to the Copernican revolution, the invention of rockets, the launch of Sputnik and subsequent growth of NASA, closing on the Challenger disaster and the "Star Wars" concept. Issues discussed include controversies over funding of space development vs. funding for world problems, cooperation vs. competition between nations in space technology, and support for manned vs. unmanned missions. The first-person text addresses students with questions such as "Do you think a strong military presence in space is necessary?" (Events in the Soviet Union subsequent to this publication pose a different set of questions which teachers and readers will want to ponder.) Each chapter concludes with review questions. Besides the usual reference features, the text provides

historic press reports and transcripts of space dialogues. The book's strengths lie in its personal tone, general readability, and comprehensive historical overview. Illustrations and photographs (black and white) are disappointing. A great discussion starter--Asimov always is--this one will launch introductory courses on space exploration with both the facts and pizazz.

Bare, Colleen Stanley. ELEPHANTS ON THE BEACH. 32 p. $12.95. Dutton, 1990. (ISBN 0-525-65018-0) Grades K-3. Grades K-3: CG 1

This lively presentation of the charmingly ugly elephant seal acquaints beginning readers with the animal whose large snout earned it the name. In big print and many delightful photographs, the elephant seal's story unfolds, from its anatomy, habitat, behavior, reproduction, and feeding, to its threatened environment due to the careless soiling of seas and beaches by humankind. The near extinction of the elephant seal in years past as well as the wanton destruction of its habitat provides a sober conclusion to the photographic narrative of this less familiar creature. An index aids students learning research techniques. This title is a fine addition to collections tagged for environmental studies, ecosystems focus, or life sciences in the early grades.

Bare, Colleen Stanley. NEVER KISS AN ALLIGATOR! unp. $12.95. Dutton, 1989. (ISBN 0-525-65003-2) Grades 2-4. Grades 2 and 3: CG 1. Grade 4: CG 2

Excellent color photographs will delight and inform children as the text tells them about where alligators are found, their habitats, their physical characteristics, and their natural enemies (man, of course, being the most threatening and dangerous). A detailed comparison is made between alligators and crocodiles. The author/photographer emphasizes that alligators, survivors of the dinosaur age, should be respected, studied, and protected--never harmed. Young students will both learn from and enjoy this selection as a classroom supplement or an interesting read from library shelves.

Beckelman, Laurie. THE FACTS ABOUT ALZHEIMER'S DISEASE. (Facts About Series) 48 p. $10.95. Crestwood Hse., 1990. (ISBN 0-89686-489-8) Grades 2-5. Grade 4: CG 1. Grade 5: CG 1

Alzheimer's disease is just beginning to be widely recognized and medically explored, but as a society we are becoming informed and alerted regarding this devastating illness despite the fact that its origins and a cure or prevention remain undiscovered. Beckelman's easy book written for young children is a sympathetic portrait of the disease, to which her own grandmother succumbed when Beckelman was a child. She describes the inexorable mental and physical declines, reviews the known facts, discusses the frustrating lack of knowledge, clarifies distinctions between Alzheimer's and the normal forgetfulness which accompanies aging, dispels myths about Alzheimer's (especially the myth that all old people become senile by virtue of age itself), and makes humane and sensitive suggestions for children relating to their relatives or friends with the disease. Many color photographs depict the elderly with their caretakers, with young children, and with medical staff, encouraging a warm, loving relationship in the obvious affection and concern captured by the camera. A bibliography and glossary/index complete this low-keyed, kindly text which will gently remind youngsters of their need to remember the good times and aid their elderly kin through the bad times with compassion.

Bender, Lionel. ATOMS AND CELLS. (Through the Microscope Series) 32p. $11.90. Gloucester Pr., 1990. (ISBN 0-531-17219-8) (Available from Watts) Grades 5-8. Grade 5: CG 2. Grade 7: CG 4

Various sorts of atoms, molecules, and cells are described in two-page subsections throughout this book. An introductory page explains different types of magnifying instruments (e.g., a magnifying glass, a school microscope, and an electron microscope) with text and illustrations. Brief text combined with large, colorful photographs and illustrations go on to cover elements and molecules, crystals and chains, biomolecules, viruses, bacteria, single-cell animals, single-cell plants, organelles, cell division, spores, and simple many-celled creatures. Also included are a few simple projects, brief information about microphotography, a glossary, and an index. This selection could be useful as a preparatory overview for lab or microscopic work.

Berger, Melvin. AS OLD AS THE HILLS. (Discovering Science Series) 32 p. $12.90. Watts, 1989. (ISBN 0-531-10699-3) Grades K-3. Grades K-3: CG 3

In simple terms and large, colorful drawings, the role of plate tectonics in shaping the earth's continents, mountain ranges, and general geography is explained to beginning students. In addition, Berger reviews the earth's internal processes which produce earthquakes and volcanic eruptions. To achieve a simulation within the grasp of young students, the text suggests activities to the reader like laying a heavy towel on the floor and slowly sliding one end toward the other, which is pressed down tightly by the child's flattened palm. As the sliding towel folds in peaks against its taut side, the concept is demonstrated of fold mountains rising out of the earth's crust. Other easy examples illustrate what could be difficult abstractions. S. D. Schindler's artwork is a big plus, both in its rendering of the earth's layers, its conception of Pangaea--the giant supercontinent--gradually separating into our familiar continents and oceans, and in its pleasant, child-centered pictures.

Berger, Melvin. SOLIDS, LIQUIDS, AND GASES: FROM SUPERCONDUCTORS TO THE OZONE LAYER. 78 p. $11.99. Putnam, 1989. (ISBN 0-399-21731-2) Grades 4-8. Grades 4, 5, and 6: CG 3

A straightforward text strengthened by carefully chosen examples explains each of the three states of matter: solids, liquids, and gases. After providing a clear, down-to-earth definition and discussion of all three, Berger follows up with related information on current concerns. The section on solids includes a discussion of how conductors, semiconductors, and superconductors affect our energy delivery system. The liquids section covers acid rain and its destructive effect on the environment and eventually on people. Gases deals with the depletion of the ozone layer of the atmosphere and how this depletion relates to skin cancer. Warnings about CFCs (chlorofluorocarbons) are especially vivid. A glossary and index extend the title's research usefulness. Illustrated with adequate black-and-white photographs, diagrams, and pictorial instructions for experiments, this book is not eye-catching, but its compact, important content is well stated. One caution: The review copy was missing a number of text pages, an oversight now corrected--one hopes.

Bornstein, Sandy. WHAT MAKES YOU WHAT YOU ARE: A FIRST LOOK AT GENETICS. 115 p. $11.98. Messner, 1989. (ISBN 0-671-63711-8) Grades 4-8. Grade 4: CG 2. Grade 6: CG 2. Grade 7: CG 3. Grade 8: CG 3

A good explanation of heredity and how genes and inherited traits work, this text covers the types of cell division in reproduction and growth, Mendel's experiments in growing peas, family genes and traits, the DNA blueprint, and the role of RNA. Six "Activity Boxes" provide useful exercises for a class to complete when studying genetics, from the more complicated, like graphing a family tree (with detailed instructions on tracing recessive and dominant genes), to the simplest, like using your two hands to mimic cell division (mitosis). Accurate and up-to-date, the content helps readers to understand the complexity of genetics, especially by not focusing on the portion of Mendel's work which modern research has shown us is simplistic. Although indexed and containing many diagrams and charts which provide instruction in themselves, the dearth of illustrations will discourage individual students' selecting this title for research. Huge paragraph indentations and wider than average pages create a misleading impression of simplicity, for, unless used with academically gifted students, this book will be of use only as a supplementary source for the teacher. It will benefit upper elementary and middle school libraries that serve academically talented populations and/or have strong science teachers.

Branley, Franklyn M. SHOOTING STARS. (Let's-Read-and-Find-Out Science Books) 32 p. $12.89. Crowell, 1989. (ISBN 0-690-04703-7) Grades K-2. Grade 2: CG 3

This introduction to shooting stars describes the composition, origin, and wide size range of shooting stars and explains the differences between meteors, meteoroids, and meteorites. The author includes interesting historical accounts of meteorites that have formed craters or actually crashed into homes. The information is clearly presented, and an abundance of clever, appealing, colorful illustrations by Holly Keller depict children watching and learning about shooting stars. Also included are color and black-and-white photographs of meteorite craters and a brightly colored diagram showing origins of meteorites. This charming book would be suitable for individual browsing or as an introduction to the subject of shooting stars.

Branley, Franklyn M. WHAT HAPPENED TO THE DINOSAURS? (Let's-Read-and-Find-Out Science Books) 32 p. $12.89. Crowell, 1989. (ISBN 0-690-04749-5) Grades K-3. Grade 2: CG 3. Grade 3: CG 3

The mystery of the dinosaurs' disappearance is addressed in this book for young students of science. Several theories are mentioned, including disease, starvation as a result of a cooling off in the earth's temperature, and the idea that small animals ate the dinosaurs' eggs. Most of the book, however, explores the theory that fires started by comets crashing into the earth destroyed the dinosaurs. Branley emphasizes that so far no one really knows for certain the answer to the question posed by his title. Color illustrations by Marc Simont are clear and informative. Given the ever popular nature of its subject, this selection should be well used.

Cobb, Vicki. FOR YOUR OWN PROTECTION: STORIES SCIENCE PHOTOS TELL. 32 p. $12.88. Lothrop, 1989. (ISBN 0-688-08788-4) Grades 4-6. Grades 4-6: CG 1

Scientific applications for modern photography techniques are explored through the text and fascinating color photographs of this selection. The author describes environmental threats to humans, such as cold, germs, and dust, and details how our skin, hair, and materials such as fabrics offer protection from these threats. General explanations are given of ways in which high-speed strobe photography, thermography, and scanning electron microscopy reveal objects, properties, or events that the naked eye cannot see. A detailed index is included. The high-magnification photographs are a strong point of the book. The content, however, is not always logically sequenced and may be more suitable for individual browsing than for researching specific facts.

Cobb, Vicki. WHY CAN'T YOU UNSCRAMBLE AN EGG? AND OTHER NOT SUCH DUMB QUESTIONS ABOUT MATTER. 40 p. $12.95. Lodestar Bks., 1990. (ISBN 0-525-67293-1) Grades 2-5. Grade 2: CG 2. Grade 3: CG 2. Grade 4: CG 3. Grade 5: CG 3

Young children learn about the nature of matter by investigations into nine questions, including "Why does an ice cube float?", "Why isn't the Earth egg-shaped or a cube?", and "How is warm air different from cold air?". Some concepts covered are density, elements, the process of changing matter from liquids to solids, air pressure, spherical shapes, and chemical reactions. Important terms (molecule, gas, element) are italicized when they first appear and are then defined in context. Examples of illustrative parallels include comments like "Cracks are put into sidewalks so they won't form cracks where we don't want them" (explaining how freezing water can crack stones), and "A piece of black hole the size of a pea would weigh more than the entire earth" (on black holes). Cartoon-like, pen-and-ink drawings enhance and further explain the text. An index aids this useful selection for stimulating class discussion, for introducing concepts about matter, or for individual browsing.

Cobb, Vicki. WRITING IT DOWN. 32 p. $11.89. Lippincott, 1989. (ISBN 0-397-32327-1) Grades K-3

This short, humorous book informs readers of inventions that help us write. The history and development of paper, ballpoint pens, pencils, and crayons are discussed and illustrated with Marylin Hafner's colorful, witty pictures. Simple directions for making paper are also included. A bright, attractive, cheerful introduction to the history of writing tools that also encourages children to use these tools to create their own art.

Cowcher, Helen. ANTARCTICA. unp. $13.95. Farrar, 1990. (ISBN 0-374-30368-1) Grades K-2. Grades K-2: CG 1

The nesting habits of emperor penguins, Weddell seals, and Adelie penguins in Antarctica provide the basis for this simple and sensitive book. The struggle for these animals to raise their young includes avoiding some natural enemies (e.g., the leopard seal) and some unnatural ones (helicopters, for instance, which frighten the Adelies into leaving their eggs). The book's ultimate message, presented in a subtle yet powerful way, is that these animals must contend with frightening human creations and acts that threaten their environment and their peace. Color illustrations are in double-page spreads with only a sentence or two of text per illustration. This selection provides young children with a gentle introduction to the idea that animals and humans must share this earth in a compassionate way in order to survive.

Docekal, Eileen M. NATURE DETECTIVE: HOW TO SOLVE OUTDOOR MYSTERIES. 128 p. $14.95. Sterling, 1989. (ISBN 0-8069-6844-3) Grades 4-6. Grade 4: CG 2 and 4. Grade 5: CG 2. Grade 6: CG 5

Nature lovers will enjoy the investigative projects designed to satisfy their curiosity and initiate them into the world of clues to why birds sing, how seeds travel, how sky watching reveals weather, how they can track animals by prints and scent, and how fairy rings function, among many others. Set up like a detective's handbook, the text has a table of contents, chapter headings, and organization which will appeal to the child's sense of mystery and natural curiosity ("Hidden Havens," "Follow That Scent"--beckoning chapter titles). David Eames' one-color line drawings are prolific, well sequenced, and mix humor with accurate scientific representation. Readers will hoard the tips and clues provided and expand their concepts to other areas of individual research into nature. A familiar, conversational text, step-by-step instructions, an attractive format, wide margins, and a comprehensive index are strengths of a valuable candidate for science libraries.

Dolan, Edward F. DROUGHT: THE PAST, PRESENT, AND FUTURE ENEMY. 144 p. $13.40. Watts, 1990. (ISBN 0-531-10900-3) Grades 9-12. Earth Science: CG 6 and 7

This selection provides a sobering look at the historical impact of drought on our planet. The Dust Bowl of the 1930s and disastrous droughts in other nations are detailed. Information is included as to the causes of drought and man's attempt to control it, the devastating social and economic effects of drought, and the serious threat of future droughts due to changes in the earth's climate. The text is current and logically sequenced. Chapters are subdivided into titled sections for easier access to information. Diagrams, maps, and black-and-white photographs accompany the text. The author includes a listing of source notes organized by chapter and topic, a bibliography, and a four-page index. This book is well suited for use by those preparing reports or for classroom use in the study of climate.

Epstein, Sam and Beryl. BUGS FOR DINNER? THE EATING HABITS OF NEIGHBORHOOD CREATURES. 48 p. $12.95. Macmillan, 1989. (ISBN 0-02-733501-1) Grades 4-6. Grade 4: CG 2. Grade 6: CG 5

The eating habits of squirrels, earthworms, and a variety of birds and insects are detailed in this book. The authors explain how each animal locates or captures its food and also describe their digestive processes. The book also examines ways in which each animal avoids becoming the prey of another creature. Pen-and-ink drawings give clear and detailed views of each animal. In some cases, diagrams are included to point out body parts such as the crop, thorax, and gizzard. The index is categorical and lists each animal with associated topics such as "enemies of" rather than including specific vocabulary terms. This would be an appropriate research tool as well as an enrichment text for life science classes.

Fine, John Christopher. CREATURES OF THE SEA. 32 p. $13.95. Atheneum, 1989. (ISBN 0-689-31420-5) Grades 3-5. Grade 3: CG 1. Grade 4: CG 2

Sea creatures, both familiar and unusual, are the stars of beautiful color photographs and the subject of the accompanying explanations of their special characteristics. Some of the creatures described are hermit crabs, trumpet fish, lima clams, anglerfish, flounder, Christmas tree worms, puffer fish, bristle worms, coral, crocodile fish, clown fish, batfish, and scorpion fish.

These superb pictures of the underwater world along with the brief but informative text will help children understand the reasons for the very strange appearance of some ocean residents. An index helps students locate information.

Fischer-Nagel, Heiderose and Andreas. FIR TREES. (Nature Watch Series) 47 p. $12.95. Carolrhoda Bks., 1989. (ISBN 0-87614-340-0) Grades 5-8. Grade 5: CG 2. Grade 6: CG 5

A translation/adaptation from the German, FIR TREES is a graphically appealing book on the true firs, focusing on nine species of fir trees native to America. In text and sharp, clear color photographs, the book covers the growth, development, and ecosystem of this endangered evergreen. The damages of commerce and pollution provide a background to the story of firs, figuring in discussions of their increasingly threatened existence due to acid rain, forest fires, and over harvesting, among other destructive forces. Smoothly, interestingly written, the content succeeds through a sympathetic point of view, vivid description, and imaginative comparisons. For example, a particular fir began to grow not just in 1823 but "when James Monroe was President and the United States government was not even 50 years old." Key-words appear in dark print and are defined in a glossary. Along with the superb photographs, an index rounds out an excellent reference source for students learning about ecosystems, ecology, and, of course, the magnificent firs.

Franck, Irene M., and David M. Brownstone. HEALERS. (Work Throughout History Series) 232 p. $17.95. Facts on File, 1989. (ISBN 0-8160-1446-9) (Available from Bemar) Grades 10-12. Biology: CG 8

Students who enjoy discovering odd, quaint facts about universal human experiences, such as illness, childbirth, taking medicine, or hospitalization, or who have a special interest in medical, veterinary, or pharmaceutical careers will find this book fascinating. Filled with historical facts, tidbits, and lore, Healers explores the ancient and modern occupations of barbers, dentists, midwives, obstetricians, nurses, pharmacists, physicians, surgeons, psychiatrists, psychologists, and veterinarians. The text examines how each occupation came into being and evolved, both in society's view and in fact, incorporating technology over time. Especially absorbing are ancient and medieval attitudes toward illness and physical and mental health, descriptions of those who performed the services rendered the sick and injured, and the quaint curatives or, in some instances, the astute treatment prescribed. The book is necessarily broad and general, a fact compensated for, overall, in its fascinating details on the obscure practices described--those of Egyptian priest-physicians or medieval midwives, for example. The section on psychiatrists and psychologists, however, adopts a rather patronizing, judgmental tone, especially toward drug therapy in the treatment of neuroses and psychoses. Reproductions of archival drawings and paintings and photographs in black and white illustrate nicely. Wide margins, good print, a bibliography, and index are further inducements. It will not be used by the general biology student but will serve as an excellent research tool.

Friedhoffer, Robert. MAGIC TRICKS, SCIENCE FACTS. 126 p. $12.90. Watts, 1990. (ISBN 0-531-10902-X) Grades 5-9. Grades 5-8: CG 1

A most engaging book of magic tricks, Friedhoffer's collection is divided into four sections of tricks that illustrate principles in physics, math, chemistry, and physiology. Every trick has subsections giving the reader the effect, the routine, and the props, as well as why it worked. For example, the section on physics sleight of hand describes three tricks using a "haunted" matchbox, a finger ring, and "magic rings of Cairo" (paper towel tubes), all demonstrating the simple pulley and basic principles of movement. In math magic, one trick requires a telephone book and instructions to open the book "to any page and mark off twenty successive numbers." Out of those 20, the odds are 7 to 1 that at least two of those 20 numbers will have the same last two digits, illustrating the theory of probability first developed by Paschal. Principles are quite simply summarized or significantly alluded to, reinforcing classroom instruction. Many tricks seem totally original, and all appear to be tricks that students can master. Frequent cautions warn students about improper use of chemicals and caution them to treat all such ingredients with respect. A truly involving book that will help teachers interest students in the "secrets" of science and math, this title will be an excellent addition to any middle school library collection.

Gardner, Robert. EXPERIMENTING WITH INVENTIONS. (Venture Books) 128 p. $11.90. Watts, 1990. (ISBN 0-531-10910-8) Grades 9-12. Physical Science: CG 1. Biology: CG 1 and 8. Earth Science: CG 11. Chemistry: CG 9. Physics: CG 1 and 7

Curious, creative students will enjoy this interesting introduction to inventions and inventors. Gardner describes qualities inherent in good inventors, such as inquisitiveness, imagination, persistence, optimism, and receptiveness to their subconscious selves and includes advice from successful inventors. He examines the working styles of Edison, da Vinci, and other well-known inventors, providing anecdotes of how accidental discoveries produced useful products and theories, such as potato chips, penicillin, and the process of vulcanization. A large section offers suggestions for forming an invention club, hosting invention contests, brainstorming for new uses for common objects and broken or discarded ones (a needed boost for environmental conservation), and applying for a patent. The black-and-white photographs and diagrams are merely adequate. The vocabulary level is basic enough for high school students who are poor readers. Select this one for curious and inventive students or as a handbook for small groups participating in an invention club or enrolled in a minicourse or magnet school course on inventions.

Gay, Kathlyn. OZONE. (Impact Series) 128 p. $12.90. Watts, 1989. (ISBN 0-531-10777-9) Grades 6-12. Grade 6: CG 5. Grade 7: CG 8. Grade 8: CG 3. Biology: CG 7 and 8. Earth Science: CG 7

Kathlyn Gay explains how pollution is threatening the ozone layer, a condition which in turn endangers people, plants, and animals exposed to ozone pollution and to the consequences of stratospheric ozone loss. In addition to reviewing past agreements and EPA controls intended to protect the ozone, Gay also outlines initiatives necessary to reduce and eliminate the problem, putting them into personal perspective by listing actions that individual students can take to become caretakers of the Earth. The author's tone is nonjudgmental and objective. Endnotes for every chapter help emphasize to students that

information should be attributed to the original source, providing a strong model for research efforts. A comprehensive bibliography and extensive index make this volume a librarian's delight as well as a classroom teacher's. Selected black-and-white photographs help illustrate the content in this up-to-date, excellent summary for any school in which teachers assign reports on environmental issues.

Gelman, Rita Golden. MONKEYS AND APES OF THE WORLD. 64 p. $11.90. Watts, 1990. (ISBN 0-531-10749-3) Grades 3-6. Grade 3: CG 1. Grade 4: CG 2. Grade 5: CG 2. Grade 6: CG 5

Easy vocabulary, a handsome format, and excellent color photographs and watercolors are hallmarks of an appealing, often droll study of monkeys and apes which concludes on the simple statement, "Monkeys and apes are a lot like us." That point is reinforced throughout Gelman's engaging discussion of these animals' intelligence, feeding and grooming habits, and social interactions, with specific attention given to orangutans, macaques, baboons, gorillas, gibbons, and chimpanzees. The friendly, tolerant tone, for example, informs us that chimps "love to snack on termites" and, again, a smart young macaque named Imo refused to eat the sand-soiled potatoes--a real treat--tossed by scientists to her and her cohorts on their island beach until she dunked them into the ocean, whereupon all her playmates, her mom, and "her mom's friends" did likewise. But the males characteristically ignore both the young and females. "Weeks later, they were still crunching sand." Irresistible and anecdotal, yet factually solid and sequenced for young readers' grasp and attention spans, this selection is fine high interest/low vocabulary pleasure reading in addition to a research source for students. A glossary, bibliography, and index conclude the text.

George, Jean Craighead. ONE DAY IN THE TROPICAL RAIN FOREST. 56 p. $11.89. Crowell, 1990. (ISBN 0-690-04769-X) Grades 4-7. Grades 4-7: CG 1. Grades 5-7: CG 5

Tepui, a young Indian boy, lives in a Venezuelan rain forest. Readers take a day's journey through that forest as Tepui and a scientist look for a previously unknown, unnamed butterfly. If they find one, a wealthy man will buy and save the rain forest. If not, this particular day will be the day of the forest's destruction. As Tepui and the scientist go through this day, readers see or hear about many of the forest's sights: a jaguar, a colony of army ants, gigantic Hercules beetles, termites, sloths, monkeys, lizards, frogs, land crabs, long-nosed tapirs, falcons, hawks, other animals, and more kinds of plants than could even be described. Descriptions of the day's sights and happenings are divided into segments based on time of day. Throughout the descriptions of the rain forest, George also manages to explain the importance of the rain forests to the entire earth and to provide some insight into what happens to rain forest dwellers (both human and animal) when forests are destroyed. Black-and-white illustrations by Gary Allen are clear and informative. Also included are a bibliography and an index. This selection is an excellent introduction to the rich variety of life in the rain forests and their importance to all of life. It is an appropriate classroom supplement for helping students become more environmentally aware.

George, William T. BOX TURTLE AT LONG POND. unp. $12.88. Greenwillow, 1989. (ISBN 0-688-08185-1) Grades K-2. Grades K-2: CG 1

A box turtle emerges in the early morning from a log he has spent the autumn night in. Although he spends part of his day resting in sunshine and taking shelter from an afternoon rain, his main occupation is looking for food. A chipmunk takes most of the grapes he is looking for, and a raccoon eats the worms the turtle had killed for himself. He does manage to keep himself safe from the raccoon, however, and finally finds enough grapes to satisfy his hunger. As the sun sets, the turtle finds a warm spot in the pine needles to spend the night. The clear, informative text appears with outstanding, true-to-life color illustrations by Lindsay Barrett George that will keep young eyes attentive and busy (and fascinate their teachers as well). An excellent choice for reading aloud and discussing in the classroom as well as for browsing, this is nature study for young children at its best.

Gibbons, Gail. CATCH THE WIND! ALL ABOUT KITES. unp. $12.45. Little, 1989. (ISBN 0-316-30955-9) Grades K-3

Information about different kinds of kites is the story in a colorful, typically Gibbons picture book that tells about Katie and Sam who visit Ike's Kite Shop to buy a kite for the big kite festival. They discover that there are many different shapes, sizes, and styles of kites: flat, bowed, delta, box, and flexible. To make kites even more interesting, a brief history of kites works smoothly into the narrative. In the back of the book, illustrated instructions explain how to make and launch a flat kite. Striking graphics in bold, bright greens, reds, blues, and yellows frame the text as well as illustrate the beauty and variety of different kite structures. Kite names appear with illustrations, helping young children focus on specific styles. The text appears on white framed in black which again separates text from illustration and helps the child focus his or her attention. Simple yet vivid drawings aided by well-written short paragraphs make this an appealing, excellent reference for kite enthusiasts--and teachers looking for activities to do in March.

Gibbons, Gail. MONARCH BUTTERFLIES. unp. $13.95. Holiday, 1989. (ISBN 0-8234-0773-X) Grades 1-4. Grades 1-3: CG 1. Grade 4: CG 2

Concise text and stylized drawings in intense colors describe the life cycle of a monarch butterfly, beginning with the laying of the egg on a milkweed plant. The stages of the life cycle then explored are hatching of the egg, molting, formation of the chrysalis, growth of the butterfly inside the chrysalis, emergence of the butterfly, and its initial flight. A labeled drawing indicates the different parts of the butterfly and is followed by several pages of information about its migration habits. A two-page section shows how to raise a monarch butterfly from a caterpillar (adult supervision is needed although the text fails to mention that fact), and the final page summarizes some interesting facts about monarchs. Phonetic spellings are given for difficult words such as proboscis and abdomen. Young readers and researchers will delight in this attractive, informative book.

Gibbons, Gail. WEATHER WORDS AND WHAT THEY MEAN. unp. $13.95. Holiday, 1990. (ISBN 0-8234-0805-1) Grades K-3. Grade K: CG 3. Grade 2: CG 3

Gibbons develops the four weather concepts of temperature, air pressure, moisture, and wind in bright, bold drawings and simple text. Although the book reads like a distilled and controlled text, the cartoon-like illustrations and key words presented in dialogue balloons result in a textbook/picture book blend of fine visual appeal. Young readers will gain basic information on the four weather concepts while enjoying the colorful graphics featuring children outdoors. One sentence of the text might be better omitted, however, which is the statement that "Thunderstorms are scary!" An opinion statement is best excluded from a factual book, but this book's comic strip graphics might excuse that particular exclamatory, chatty inclusion. An illustrated fact page at the back of the book cites interesting weather phenomena, such as the existence in Chile of a desert which has had no rain in over 400 years and the information that one flash of lightning releases enough electricity to light a house for one year. This book will be popular and useful.

Goor, Ron and Nancy. INSECT METAMORPHOSIS: FROM EGG TO ADULT. 26 p. $13.95. Atheneum, 1990. (ISBN 0-689-31445-0) Grades 2-4. Grades 2 and 3: CG 1. Grade 4: CG 2

Complete and incomplete metamorphosis are discussed in the two sections of this attractive book. Readers learn the four stages of complete metamorphosis and follow the hickory horned devil caterpillar through the whole process from the egg to the emergence of a royal walnut moth. Other insects discussed in this section include mourning cloak butterflies, cecropia moths, mosquitoes, and wasps. The section on incomplete metamorphosis looks at grasshoppers, praying mantids, dragonflies, and cicadas. Clear, logical organization distinguishes this text, and outstanding, informative color photographs make this selection of even more value as an introduction to one aspect of natural science. An index is included. The review copy lacked a subject heading on page 16.

Hansen, Michael C. COAL: HOW IT IS FOUND AND USED. (Earth Resources Series) 64 p. $13.95. Enslow Pubs., 1990. (ISBN 0-89490-286-5) Grades 6-12. Grade 7: CG 7. Grade 8: CG 3 and 4. Physical Science: CG 4 and 5. Biology: CG 7. Earth Science: CG 2-5 and 11

The origins of coal and the history of its mining, use, and effect on the human community are the subject of this accessible, well-organized text. Hansen describes the formation and composition of lignite, subbituminous, bituminous, and anthracite coal. Locations of the world's largest coal reserves are identified in the text, with explanations of their occurrences in given places, and a map and chart further illustrate major worldwide deposits. Readers learn methods of undergound, surface, and auger mining, as well as the process of transporting coal. Historical and current problems of mine safety, the environmental dangers of coal mining--especially the abandoning of old mines--and ways to reduce related environmental hazards deserve and get intelligent analysis. A glossary, index, and resource lists provide supplemental aid. Rather dreary black-and-white photographs are the weakest component of this otherwise strong resource for written reports and classroom units on coal mining.

Hopf, Alice L. SPIDERS. 64 p. $13.95. Dutton, 1990. (ISBN 0-525-65017-2) Grades 4-8. Grade 4: CG 2. Grade 7: CG 5

This book on spiders opens with a description of what spiders are not--e.g., they are not insects, they are not plant eaters, they do not all spin webs. Having dispelled most misconceptions, it focuses in succeeding chapters on hunters, mating, motherhood, web-weaving, biggest spiders, poisonous spiders, and the ingenuity of the species. Ann Moreton's sharp, full-color photographs show closeups of spiders in their habitats, trapping prey, protecting their young, and exhibiting their identifying anatomy, such as the infamous Black Widow's red hourglass and the deadly Brown Recluse's violin-shaped dark band. Scientific terms are italicized and defined when they occur in context. Photograph captions and an index are important aids. The author's use of "beautiful," "very useful," and "truly remarkable" to describe numerous spiders, their functions in our environment, and their adaptation to their small part of the world can assist in overcoming youngsters' revulsion and in stimulating informed appreciation for this generally misunderstood life form.

Huff, Barbara A. GREENING THE CITY STREETS: THE STORY OF COMMUNITY GARDENS. 61 p. $15.95. Clarion Bks., 1990. (ISBN 0-89919-741-8) Grades 3-7. Grade 3: CG 1. Grade 5: CG 2. Grades 6 and 7: CG 5

This detailed account traces the resurgence of interest in urban community gardens, focusing on the variety of activities enjoyed by participants in a Manhattan community garden project. The history of the urban gardening movement is described, and specific examples are detailed in which urban dwellers have worked together in recent years to create their own gardens. The author calls attention to the many benefits of urban gardens, such as fresh produce, gardening education for children of all ages, community involvement, and safe play areas. A bibliography, list of gardening organizations, and detailed index are included. Attractive color photographs (by Peter Ziebel) of the Manhattan parks accompany historical photographs and are consistent with the content. The text may be too comprehensive and rambling to hold the interest of elementary level students, but this book would provide good resource information for students studying urban renewal or community services projects.

Irvine, Mat. TELESATELLITE. (Engineers at Work Series) 32 p. $11.90. Gloucester Pr., 1989. (ISBN 0-531-17157-4) (Available from Watts) Grades 6-9. Grade 6: CG 4. Grade 7: CG 9. Grade 8: CG 5

An oversized format with profuse photographs and large, brightly colored diagrams summarizes the development of communications satellites and their usefulness in transmitting information across continents. Explored in brief are modern business communications, radio broadcasts, satellite construction, deployment and orbits, the use of solar cells, and the future of the communications revolution. A list of satellites (chiefly American and Russian) and their launch dates, a glossary, and an index provide ample extensions of the content. Strengths of this title include the timeliness of the information and the discussion of the four scientific principles of satellite design. A distraction is the busy (cluttered, at times) format which scatters complex information throughout the captions, diagrams, and text paragraphs. A distinctly British slant--the book is an import--focuses heavily, for example, on Arthur C. Clarke, author of the 1945 article, "Extraterrestrial Relays," a seminal work and inspiration for aspects of modern telesatellites. This is a special selection for individual browsing and research by gifted students interested in satellite communications.

Jackson, Julia A. GEMSTONES: TREASURES FROM THE EARTH'S CRUST. (Earth Resources Series) 104 p. $16.95. Enslow Pubs., 1989. (ISBN 0-89490-201-6) Grades 5-12. Grade 5: CG 4. Grade 7: CG 7. Grade 8: CG 4. Earth Science: CG 2

A highly readable general discussion of gems and the characteristics by which they are judged, Jackson's account functions as an introductory handbook with well-organized, easy-to-locate information on 15 of the most familiar kinds of gemstones. Distinguishing facts from fancy in an entertaining first chapter, Jackson reviews gem lore and retells some anecdotes about the special properties and magical and symbolic powers attributed to specific gems. A discussion of what constitutes a gem summarizes the chemical composition and internal structure of minerals and introduces terms like fire, brilliance, luster, and play of color. The bulk of the book centers on the history, composition, locales, and gem cuts of precious and semiprecious stones, often made especially memorable by historical and legendary anecdotes associated with them, such as the disappearance of Louis XIV's famous 67-carat "French Blue" diamond during the French Revolution and the Hope Diamond's supposed curse on its owners. This is not a mineral identification book, but it will appeal to students and teachers seeking specific facts about the earth's treasure and can certainly spice up lessons on rocks and minerals. Color plates of spectacular gems, cut and mounted, will please the eye, along with useful black-and-white photographs of many stones in their natural, uncut "settings" (geodes, etc.). A glossary, maps, and index are invaluable for research purposes. North Carolinians will notice many references to gem fields such as those at Franklin and Emerald Village near Little Switzerland. Tarheelia is a diamond in the rough indeed! (An emerald, anyway.)

Johnson, Rebecca L. DIVING INTO DARKNESS: A SUBMERSIBLE EXPLORES THE SEA. 72 p. $14.95. Lerner Pubns., 1989. (ISBN 0-8225-1587-3) Grades 5-12. Grade 5: CG 1. Grade 6: CG 1. Grade 7: CG 1. Grade 8: CG 1

The pioneer work of scientists who have advanced the technology of deep-sea research and increased the safety and usefulness of submersibles is one subject among many in a fully illustrated history of submersible underwater vehicles. The text describes and pictures aquatic life made accessible to human research by such sophisticated machines as the Johnson-Sea-Link submersible. Fascinating marine life on the ocean floor floats before the reader's eyes, the significance of which is clearly, interestingly described in the narrative. Terms found in the glossary are printed in bold type at the point where they first appear in the text. Uncluttered and attractive, the format includes numerous brilliant color photographs and diagrams well sequenced with the readable content, assisted by a detailed table of contents (including subheadings), a helpful introduction, and an index. This excellent book is suitable for individual reading for pleasure or research as well as a supplementary source for the classroom science library.

Johnston, Ginny, and Judy Cutchins. WINDOWS ON WILDLIFE. 48 p. $13.88. Morrow, 1990. (ISBN 0-688-07873-7) Grades 4-6. Grade 4: CG 2. Grade 6: CG 5

Six natural habitat exhibits that attempt to recreate the true environments of the animals on exhibit are examined (the gorilla exhibit at the Atlanta Zoo, the Penguin Encounter at Sea World in Orlando, Jungle World at the Bronx Zoo, Hippoquarium in the Toledo Zoo, the R. J. Reynolds Forest Aviary at the North Carolina Zoological Park, and the Kelp Forest in the Monterey Bay Aquarium).

Introductory and summary pages provide general material about natural habitat exhibits and the differences between living in the wild and in a habitat exhibit. A glossary and index round out a useful supplementary book that could be helpful in introducing a field trip to the zoo.

Koral, April. OUR GLOBAL GREENHOUSE. 64 p. $10.90. Watts, 1989. (ISBN 0-531-10745-0) Grades 4-8. Grade 4: CG 1 and 4. Grade 5: CG 1 and 5. Grade 6: CG 1. Grade 7: CG 1, 5, and 8. Grade 8: CG 1 and 3

A clear, yet not oversimplified, examination of the environmental problem known as global warming or the greenhouse effect, its consequences for the environment, and the ways this process may be slowed. The book begins by explaining what causes the greenhouse effect and notes the long-term consequences of global warming. It next looks at where the increasing levels of such greenhouse gases as carbon dioxide and chlorofluorocarbons (CFCs) come from and what environmental damage they do. The impact of global warming is examined by discussing the effects of droughts, extended heat waves, energy shortages, rising sea levels, and a predicted thinning of the ozone layer. Strategies for cutting down on greenhouse gases are presented (e.g., finding alternative energy sources to coal, oil, and gas; energy conservation; and finding substitutes for CFCs in many products). Also explained is the importance of international cooperation in stopping or slowing down the greenhouse effect. Four simple experiments for learning more about the greenhouse effect conclude this excellent introductory volume. Fine color photographs and illustrations appear throughout, and an index is included. A valuable addition to any discussion of current environmental issues.

Kramer, Alan. HOW TO MAKE A CHEMICAL VOLCANO AND OTHER MYSTERIOUS EXPERIMENTS. 111 p. $11.90. Watts, 1989. (ISBN 0-531-10771-X) Grades 4-6; teacher use. Grades 4-6: CG 3

The experiments in this book written by a thirteen-year-old student fascinated by chemistry are presented in the context of brief mysteries, a fact which gives the book an extra measure of interest and appeal to young readers. Introductory sections explain special symbols and words used in the book and describe how to set up a home lab (with emphasis on safety precautions). Directions for each experiment list equipment needed and detailed steps for performing the experiment. Cautionary notes generally appear at the end of the directions although the word caution accompanies some items in the equipment list or instructions. A bibliography and an index are included. Although this is a delightful book, librarians may want to consider it as a teacher resource rather than putting it in general circulation. Some risks are inherent in a few of the experiments, and students should read through the complete instructions before attempting an experiment because so many of the safety warnings occur at the end of the directions. Used safely in a controlled situation, however, this book can make learning fun and provide valuable hands-on experience.

Krupp, E. C. THE BIG DIPPER AND YOU. 48 p. $13.88. Morrow, 1989. (ISBN 0-688-07192-9) Grades 1-4. Grade 2: CG 3. Grade 3: CG 3. Grade 4: CG 5

Krupp, an astronomer and director of an observatory, explores the Big Dipper constellation, how it points to the North Star, how it changes position as the earth rotates and spins, how it has served humankind throughout history, and where it will be in the sky 26,000 years from now. The engrossing text

relates astral and space concepts to everyday life while continually connecting our expanded knowledge and perception to that of ancient cultures from whom we inherit rich astronomical lore and wisdom. Illustrations in black and white (pen and charcoal) by Robin Rector Krupp are not only scientifically accurate but also endow objects in space with "heavenly beings" status--a merry sun with fat cheeks smiles from its astronomically correct placement, and two lovable bears depict Ursa Major and Ursa Minor. This book is a fine mix of history, science, and myth, a diversity reflected in the profusion of lesson-extending graphics. Children will like and understand this engaging title.

Lampton, Christopher. NEW THEORIES ON THE BIRTH OF THE UNIVERSE. (New Theories Series) 175 p. $13.40. Watts, 1989. (ISBN 0-531-10782-5) Grades 9-12. Physical Science: CG 1, 2, 6, and 7. Biology: CG 2. Earth Science: CG 9. Chemistry: CG 1 and 2

Christopher Lampton has written an exciting, difficult history of some of the oldest and some of the newest, most speculative theories of the creation of the universe in direct, enthusiast-to-enthusiast style that keeps you reading even when the abstractions and the math, from time to time, become too sophisticated for the uninitiated. Lampton unifies his text with the thread of common perception linking astronomers and mathematicians as remote as Aristarchus 2,000 years ago to Copernicus, Newton, and modern-day physicists like Einstein, Stephen Hawking, and Alan Guth, all of whom have extended the long chain of gradually emerging facts on the nature and origin of the universe. Questions of where we came from, where we are going, how we will end, will we end, and what the nature of the universe actually is--all are addressed. The Big Bang, symmetry, singularity, cosmic inflation, the law of the conservation of angular momentum, grand unification theories, the eerie concept of living positronium beings, and more occupy the fascinating content of this well-organized review. A glossary, endnotes, an excellent annotated bibliography, and an index are strong aids to the book's research potential. This title will appeal to advanced, curious science students who will press on past the unknowns of their math experience and those posed by the topic itself.

Lampton, Christopher. NEW THEORIES ON THE DINOSAURS. (New Theories Series) 144 p. $13.40. Watts, 1989. (ISBN 0-531-10781-7) Grades 7-12. Grade 7: CG 2 and 8. Grade 8: CG 2, 3, and 4. Earth Science: CG 3 and 5

Dinosaurs, the "in" creatures decorating jelly jars and T-shirts, are a serious, complex subject in Christopher Lampton's absorbing text combining many old questions and intriguing new ones in a history of scientific theories about these prehistoric life forms. Included is the new theory that sleek, fast, warm-blooded dinosaurs may well have coexisted with the generally accepted stereotype of sluggish, cold-blooded monsters, that they may have varied in size to include fairly small breeds, and that they may have nurtured their young--all pointing to more highly evolved creatures than popularly thought. Lampton traces the history of fossil discovery, introduces major paleontologists, and reviews changes in scientific opinion about these Mesozoic giants through the years, from nineteenth-century religious interpretations to modern evolutionary speculations. Were they eliminated by a meteor crashing into earth and casting up clouds of dust and ocean steam that obliterated the sun for months, maybe years? Did the earth's temperature change radically if gradually, spelling doom for these titans? Lampton argues reasonably and convincingly. Not the book for the jelly jar collectors unless they also have an abiding, serious interest. Excellent black-and-white illustrations.

Lampton, Christopher. NEW THEORIES ON THE ORIGINS OF THE HUMAN RACE. (New Theories Series) 158 p. $13.40. Watts, 1989. (ISBN 0-531-10783-3) Grades 6-12. Grade 6: CG 2. Grade 7: CG 3. Grade 8: CG 2. Biology: CG 6

In his usual thorough fashion, Lampton reviews theories about the origins and evolution of human beings, describing humanity's relationship to all living things on earth as part of a "family tree" of life. In so doing, he investigates the historical development of taxonomy and genetics, the theory of evolution and its implications, the search for "missing link" fossils, the study of DNA molecules to compare species, and the mystery of man's unique self-awareness and intelligence. Discussions of fluctuating theories regarding how various prehistoric hominids fit into the evolutionary family tree are fascinating and challenging reading for younger students. Lampton's patient, almost conversational style is nevertheless scrupulously correct, providing exact definitions (as well as spelling rules for uppercase and lowercase names) in context as they occur. His appreciation for mystery, for the unfathomable unknowns about life's origins, offsets any accusation of smug, finite resolutions to these controversial issues. Illustrated in black-and-white photographs, with notes, bibliography, and index.

Lampton, Christopher. PREDICTING AIDS AND OTHER EPIDEMICS. (Predicting Series) 144 p. $12.90. Watts, 1989. (ISBN 0-531-10785-X) Grades 6-12. Grade 6: CG 2. Grade 7: CG 1. Grade 8: CG 1. Biology: CG 1 and 8

The title here is somewhat of a misnomer--AIDS occupies one, concluding chapter. Rather, Lampton's investigative thrust is the human struggle to halt the spread of infectious diseases, from the Black Death of the Middle Ages to the AIDS threat of today, and the development of the science of epidemiology over the course of time. Described are early theories of the causes of disease (such as the body's "humors"), the discovery of the germ theory, the workings of the immune system, and the development of effective vaccinations. More difficult, because mathematically quite sophisticated, is Lampton's section on the work of epidemiologists studying disease sources through mathematical charting and prediction. Up-to-date information on computer simulations and statistics to chart the AIDS epidemic is an example. An appendix contains two BASIC computer programs for programming buffs who wish to simulate the course of single or multiple epidemics. The content on statistical methods and computer simulations is detailed and potentially difficult for middle school students. School purchasers will appreciate the uninflammatory, purely clinical references to homosexual intercourse in the AIDS chapter. This text serves as a reference for individual use by students interested in historical advances in epidemiology. Photographs and drawings in black and white.

Lampton, Christopher F. SUPERCONDUCTORS. 95 p. $14.95. Enslow Pubs., 1989. (ISBN 0-89490-203-2) Grades 6-12. Grade 6: CG 3. Grade 8: CG 8. Physical Science CG 6

This title captures the excitement of the scientific community and the general public surrounding the recent superconductor revolution. The author introduces conductors in a general review of electric current, positive and negative charges, conductivity of metals, the problem of resistance, and the discovery of low-temperature superconductors in 1911. Lampton then focuses on the intensified search for high-temperature superconductors and their development in 1987 by Dr. Paul Chu. The book discusses the high interest level and rapid developments since then, including actual or potential

applications in power systems, computer hardware, nuclear magnetic resonance (NMR), nuclear fusion, SQUIDs (superconducting quantum interference device), and particle accelerators such as the superconducting supercollider (SSC). Some of the obstacles in developing applications are also mentioned. Black-and-white photographs add variety by providing diagrams, portraits of scientists and machines, and closeup views of materials. A glossary, brief bibliography, and index are included. This book is recommended for media centers supporting research on current events topics and for research in electricity and magnets.

Landau, Elaine. TROPICAL RAIN FORESTS AROUND THE WORLD. 64 p. $10.90. Watts, 1990. (ISBN 0-531-10896-1) Grades 5-8. Grade 5: CG 2. Grade 6: CG 5. Grade 7: CG 5 and 8. Grade 8: CG 3

An overview of the unique ecosystem of tropical rain forests, this text begins with descriptions of the prevalent climatic conditions found in them and a map showing the locations of rain forests on various continents. The huge variety of plant life inhabiting the three levels of the forest--canopy, understory, and forest floor--is well discussed, yielding content on unique animals (especially birds) and insect species. The conclusion explains why rain forests are vital to our world and warns of the dangers of recent deforestation. Dramatic color photographs, vivid and sharp, appear on nearly every page, fully captioned. Italicized terms, defined in context and thereby sustaining continuity, identify keywords, such as camouflage, emergents, and saprophytes. Although people who live in rain forests are mentioned, they are not pictured in the brief page and a half devoted to them. Short chapters, a glossary, bibliography, and index increase the appeal of this introduction for research or supplemental use by elementary students.

Lauber, Patricia. SEEING EARTH FROM SPACE. 80 p. $19.99. Orchard Bks., 1990. (ISBN 0-531-08502-3) Grades 6-10. Grade 6: CG 4 and 5. Grade 7: CG 6-9. Grade 8: CG 1, 3, 4, and 5. Biology: CG 7. Earth Science: All competency goals

Just what its title says, Lauber's book is a magnificent visual experience with its photographs and images of our planet from space, at all angles and in all sorts of light. Many photographs were taken by astronauts, others by satellites. Images formed from data collected by satellites and colored to distinguish the earth's features, patterns, and weather phenomena provide dramatic evidence of the mapping being doing by scientists who study remote areas, environmental problems, and other earth issues. The quality of the photography is superb, inviting readers and browsers to linger over scenes of our blue planet, lovely and fragile against the dead or life-resistant bodies sharing our solar system. The technicalities of "imaging" the earth through unmanned satellites are well explained and illustrated. Especially emphasized is the vulnerability of Spaceship Earth, as it's termed, underscored by the haunting photograph of the thin red layer of our atmosphere, the narrow white line above it which is the stratosphere, and the slight ray of blue which is the ionosphere, all of it a mere thread against the black, empty vastness of space. This book should make those guilty of "earth hubris" draw a sharp breath and rethink. A glossary, bibliography, and index are excellent research aids. Strong and weak students alike will respond to the contents of this pictorial essay on their native home.

Lavies, Bianca. LILY PAD POND. unp. $13.95. Dutton, 1989. (ISBN 0-525-44483-1) Grades K-2. Grades K-2: CG 1

Longtime National Geographic photographer Bianca Lavies takes us right into her lily pad pond with her superb, closeup photographs of a bullfrog's development from timid tadpole to dragonfly-snapping pond denizen. In this green and fluid book for young readers, the watery world of pond creatures living close to the surface, on logs, and on lily pads leaps gracefully to life. A simple text in white or black print, depending upon the least disruptive effect on the visuals, flows in perfect sequence with the cycles depicted photographically. A friendly, personal voice informs the narrative, completing the green and gold beauty of the little world so enchantingly caught. This one is just the book for hot days and field trip explorations. A special feature is the detailed scale provided to correct the illusions created by photographic enlargements of newts, water spiders and striders, turtles, and other small life forms.

Lavies, Bianca. TREE TRUNK TRAFFIC. unp. $13.95. Dutton, 1989. (ISBN 0-525-44495-5) Grades K-3. Grades K-3: CG 1

Magnificent color photographs of the life in one seventy-year-old maple tree show the fascinations of nature to be found in our own backyards. A squirrel family, a cicada, a katydid, a tree cricket, crab spiders, a wasp, a blue jay, a butterfly, an assassin bug, a moth, a starling, and three raccoons provide more entertainment and interest than children will find on their television sets. Simple, clear text discusses some of the habits and interactions of the different creatures in the "tree trunk traffic." Readers cannot fail to respond to the unusually creative and meaningful composition of the photographs in this irresistible introduction to the wonders of nature.

McCoy, J. J. THE PLIGHT OF THE WHALES. 144 p. $12.90. Watts, 1989. (ISBN 0-531-10778-7) Grades 6-12. Grade 6: CG 1 and 5. Grade 7: CG 1 and 5. Grade 8: CG 1 and 3. Physical Science: CG 1. Biology: CG 5 and 7. Earth Science: CG 1 and 11

Decimation of the world's whale population by whalers, fishermen, and pollution is the critical issue in this selection. Clearly an advocate of strict measures to halt the slaughter of whales, McCoy uses often emotionally charged vocabulary in this current, thorough text pleading for informed awareness and response to the plight of these aquatic mammals. The book is an overview of the physical characteristics and estimated populations of various types of baleen and toothed whales as well as a history of the whaling industry and whale by-products. Detailed information covers efforts by individuals, nations, the International Whaling Commission, and environmental groups such as Greenpeace to regulate the whaling industry and prevent extinction. An interesting section discusses stranded-whale rescue programs and the recent increase in whale-watching fleets, whose vigilance may possibly produce adverse effects upon the cetaceans. Many black-and-white photographs and an attractively organized format aided by subheadings in heavy print increase accessibility for research.

McDonald, Megan. IS THIS A HOUSE FOR A HERMIT CRAB? unp. $14.99. Orchard Bks., 1990. (ISBN 0-531-08455-8) Grades K-2. Grades K-2: CG 1

Forever outgrowing his home, Hermit Crab looks for a new home under a rock, but it is too heavy. He tries a rusty old tin can, but it is too noisy. In turn he struggles with a piece of driftwood, a pail, a fishing net, and so on, until at last, just in the nick of time, he scurries inside an empty sea snail shell. It is neither too big nor too noisy. It is an exact fit. The narration of this simple story of a hermit crab's quest for a house rocks gently along on the recurring question, "Is this a house for Hermit Crab?" The predictable question keeps readers searching for the answer as they read the lyrical text with its repetitive sounds of sea, shore, and Hermit Crab's "scritch-scratch" search for a a safe home. S.D. Schindler's muted watercolors in blues and browns on double-spreads are a perfect blend of the sea's beach environment, achieving an almost tactile quality of sand, mist, grit, and wave. This one is a lovely, hypnotic experience.

MacFarlane, Ruth B. MAKING YOUR OWN NATURE MUSEUM. (Venture Books) 128 p. $11.90. Watts, 1989. (ISBN 0-531-10809-0) Grades 6-12. Grade 7: CG 4. Grade 8: CG 2 and 3. Biology: CG 3, 4, and 5. Earth Science: CG 8

Students and teachers interested in developing an organized personal nature collection, a camp nature museum, or a science project will find a wealth of techniques and suggestions in this book. Separate chapters give specific suggestions for locating and collecting plants, vertebrates, invertebrates, and rocks, minerals, and fossils. A straightforward text, well organized and liberally illustrated with black-and-white diagrams, photographs, and graphics (no color, however), describes the processes of safe, purposeful specimen collection and recordkeeping. The details of identification, preservation, labeling, and display of specimens are thoroughly discussed, including tips and ideas for preparing science project exhibits. This title lacks an alluring format, but its solid content offsets that deficiency, making it a first-choice selection for its storehouse of useful information. An excellent addition to any classroom science library.

McGovern, Ann. DOWN UNDER, DOWN UNDER: DIVING ADVENTURES ON THE GREAT BARRIER REEF. 48 p. $14.95. Macmillan, 1989. (ISBN 0-02-765770-1) Grades 3-7. Grade 3: CG 1. Grade 4: CG 2. Grade 5: CG 1 and 5. Grade 6: CG 1 and 6. Grade 7: CG 1, 5, and 7

The exciting narrative of a 12-year-old girl is a perfect blend of both story and science in this recounting of her diving adventures on the Great Barrier Reef off Australia. Written in first person, the dramatic events give readers the sense of a personal guide taking them into the depths where exotic fish of every color of the rainbow swim gracefully to and fro, where curious sea snakes inspect the divers underwater, and where a 200-pound potato cod fish begs for food like a lovable puppy. The girl's adventures increase with a visit to the ghost ship Yongala that disappeared mysteriously in March 1911. Another highlight is the crew's feeding dangerous gray reef sharks from the safety of a platform. Beautiful color photography of sea life accompanies this lively, scientific adventure story, extending the exciting dives with

clear, detailed closeups of such exotica as a 100-year-old clam, a delicate feather star, a massive turtle, and magnificently colored tropical fish. The index provides an excellent reference. Facts about life on and around a coral reef are accurate and also convey a strong environmental message made more urgent by the first-person appeal and the intensely vivid photography of rare Oceania undersea life. But the writing style and exquisite photographs turn this book into a vicarious pleasure cruise down under.

McGowen, Tom. CHEMISTRY: THE BIRTH OF A SCIENCE. 96 p. $11.90. Watts, 1989. (ISBN 0-531-10804-X) Grades 6-12. Grade 7: CG 11. Grade 8: CG 7. Chemistry: CG 1

This brief history of the science of chemistry begins with its roots in antiquity and continues on to an extensive account of the work and life of Lavoisier, the father of modern chemistry. McGowen describes the changes in scientific thought over the centuries and in the process shows how one scientist's work affects another's and how the exchange of ideas encourages creativity and discovery. Black-and-white illustrations are mainly portraits. A glossary, a list of suggested reading, and an index are provided. Readable prose and a lucid presentation make this introduction to the evolutionary process of science--and in particular chemistry--accessible even to those who lack confidence in their ability to understand science.

McGrath, Susan. THE AMAZING THINGS ANIMALS DO. (Books for World Explorers) 96 p. $12.50. Natl. Geog., 1989. (ISBN 0-87044-709-2) Grades 4-7. Grade 4: CG 2. Grade 7: CG 4 and 5

A photo-text as full and varied as a zoo shows animal antics, rituals, feeding, parenting, stalking, fleeing, all in an overview of the strange and fascinating behavior of an array of exotic species. The "fastest runner on earth," the cheetah, speeds by us in one photograph, and in another two fire-bellied toads cupped in a mushroom display their deadly, telltale red capes, the poison of which South American Indians apply "to the tips of hunting arrows." Familiar and many unfamiliar life forms are caught by the camera in characteristic but seldom observed behavior which is fully explained in informative captions and a running text divided into five parts: movement, communication, reproduction, feeding, and defense mechanisms. A teacher's guide and a wall poster accompany the book. An index and bibliography complete its research capabilities. This title will interest both browsers and students seeking information on animal behavior.

McMullan, Kate. DINOSAUR HUNTERS. (Step into Reading Series) 48 p. $6.99. Random, 1989. (ISBN 0-394-91150-4) Grades 2-4. Grade 2: CG 3. Grade 4: CG 1

A moderately difficult reading primer, DINOSAUR HUNTERS tells young readers in vigorous, narrative style about paleontologists and their work. Five chapters begin with the exciting discovery in 1822 by Mary Ann Mantell of a giant fossil tooth which her husband Gideon, the scientist, classified as Iguanodon, the first scientifically classified dinosaur. The history of dinosaur excavation follows, with clear explanations of the paleontologists' job in the field, the follow-up in museum labs, and the continuing revelations about the Age of Reptiles. Important scientists, notably "Dinosaur Jim" Jensen, receive attention for their discoveries and conclusions. Scientific names for dinosaurs are phonetically spelled and defined when they appear in context. The book's story form, aided by John R. Jones's many full-color illustrations

(which are sensitive to minorities in our culture as well as scientifically correct), is especially successful in making these currently "in" animals fascinating both as science and as history. Outstanding is the vivid, careful description of how fossils millions of years old became preserved through weathering, earth upheavals, and gradual geographic shifts and changes. Much about the earth's climate, foliage, and geography in the dinosaur period, as well as the increasing role of science over the years, is an added bonus. A guaranteed hit, this book provides an excellent supplementary text fulfilling a need for background and perspective as well as mere facts.

McNulty, Faith. WITH LOVE FROM KOKO. unp. $12.95. Scholastic Inc., 1990. (ISBN 0-590-42774-1) Grades 1-4. Grades 1 and 2: CG 1. Grade 4: CG 2

Koko the gorilla was five years old when the author visited her and her caretaker scientist, Penny Patterson, in 1976. That visit is recollected in this gentle book. McNulty describes Koko's physical appearance and explains how and why Koko learned sign language. She relates her own excitement and uneasiness at the prospect of meeting Koko and her delight that Koko responds so well to her. Readers learn how Patterson became involved with Koko and some of the details of Koko's daily life. Comparisons and contrasts are made between Koko's development and that of a human child. The author's final plea is that humans learn to treat animals as gently as Koko had treated her. An afterword provides some background information about gorillas and their differences from humans and reiterates the importance of treating animals with respect and compassion. Annie Cannon's watercolor illustrations in gentle tones provide a nice accompaniment to the story of this special animal. The story's obvious interest is in the many accomplishments of Koko, but this selection is also a good choice for promoting the ability to empathize with animals and understand their need for our care and concern.

Markle, Sandra. EXPLORING SPRING: A SEASON OF SCIENCE ACTIVITIES, PUZZLES, AND GAMES. 122 p. $13.95. Atheneum, 1990. (ISBN 0-689-31341-1) Grades 3-6. Grade 3: CG 1 and 3. Grade 4: CG 2 and 4. Grade 5: CG 2. Grade 6: CG 2

A grab bag of facts, oddities, and activities associated with the spring season, this loosely organized text touches down here and there on scientific matters, all in a spirit of fun and funkiness. Thematic chapters focus on signs of spring, animal mates and babies, plants, the wind, and spring holidays. Each chapter offers a hodgepodge of scientific information and investigations, instructions for games and crafts, a riddle or two, and explorations. For example, a section on tulips explains the tulip bulb's habit of "breaking" and summarizes the history of Tulipomania in mid-seventeenth-century Holland. Another chapter includes interesting content on and an illustration of a "mermaid's purse," or leather-like pouch in which a shark's egg grows, and yet another section, on weather, defines the four basic cloud formations. Many child-centered activities for varying ages fortify the fanciful and extend the scientific. Black-and-white drawings and diagrams appear on almost every page, and an index assists use. The book is a great browser, casual and even slangy, jumping from topic to topic without transition. Basically a creative resource for elementary teachers who use thematic centers in their classroom, the book is also a high-interest/ low-vocabulary title for unscientific sorts who will gain without pain.

Markle, Sandra. THE YOUNG SCIENTIST'S GUIDE TO SUCCESSFUL SCIENCE PROJECTS. 112 p. $12.88. Lothrop, 1990. (ISBN 0-688-07217-8) Grades 4-6. Grades 4-6: CG 1

Readers take the entire science project journey from understanding what an experiment is to being in a science fair. The author explains the parts of a typical experiment (e.g., variable and hypothesis), how to formulate a hypothesis, how to design an experiment, how to use basic science process skills (observing, measuring, classifying, communicating, inferring, and predicting), how to conduct an experiment, ways of choosing a project, how to prepare a written report, and how to prepare a display. Also included are ideas for projects and an index. Sample experiments are discussed throughout the text to illustrate major points, and simple black-and-white drawings provide some visual support to the text. Students who feel totally undone at the prospect of creating a science project will find this book useful.

Matthews, Rupert. THE DINOSAUR AGE. (Prehistoric Life Series) 32 p. $11.40. Bookwright Pr., 1989. (ISBN 0-531-18280-0) (Available from Watts) Grades 4-6. Grade 4: CG 2

This book covers all kinds of dinosaurs from the behemoths (e.g., Plateosaurus and Ultrasaurus) to the meat-eating clawed killers (e.g., Baryonyx and Tyrannosaurus rex). It also tells how the dinosaurs evolved, what they were like, and when they populated the earth. The author presents theories about how they became extinct and devotes two pages to each type of dinosaur, giving information about each, such as size, maneuverability, and habitat. Full-color illustrations, a glossary, and an index accompany the text. A quick reference for users who want condensed information about these ever-popular creatures.

Nourse, Alan E. RADIO ASTRONOMY. (Venture Series) 96 p. $11.90. Watts, 1989. (ISBN 0-531-10811-2) Grades 6-10. Grade 6: CG 9. Grade 7: CG 9. Earth Science: CG 9 and 10

Nourse tells us that the newborn science of radio astronomy began in the 1940s when Grote Reber built his own radio antenna and "dish," or reflector, in his backyard, thereby furthering the accidental discovery by another amateur scientist, Karl Jansky, of radio signals from space. Unknown to them, these two young Americans had launched radio astronomy, a whole new field of science. Since that time astronomers have been able to map and identify objects and events invisible with ordinary light-gathering telescopes. This indirect study of the universe is a key to what we know about stars, neutron stars, pulsars, and black holes. Nourse also covers the expanding universe and gravitational collapse theories. He writes in a clear, succinct style which middle school students will understand and enjoy. Various black-and-white photographs assist in illustrating points. A glossary, index, and short reading list accompany the text.

Nourse, Alan E. YOUR IMMUNE SYSTEM. Rev. ed. 96 p. $11.90. Watts, 1989. (ISBN 0-531-10817-1) Grades 7-12. Grade 7: CG 3. Biology: CG 6

A revised edition that includes information on AIDS and other research topics related to the immune system. Chapters cover the immune system as a defense system, antigens and antibodies, lymphocytes, vaccination and immunization, and allergies and reactions. AIDS and the HIV virus are explained as

potential destroyers of the immune system. Occasional black-and-white photographs and illustrations complement the text. A glossary, suggestions for further reading, and an excellent index complete the book. An appropriate selection for research and supplementary reading.

Parker, Nancy Winslow, and Joan Richards Wright. FROGS, TOADS, LIZARDS, AND SALAMANDERS. 48 p. $13.88. Greenwillow, 1990. (ISBN 0-688-08681-0) Grades 1-4. Grades 1-3: CG 1. Grade 4: CG 2

Amphibians and reptiles populate this witty, information-packed book. Each two-page segment begins with a color illustration in a simple, clean style accompanied by rhyming verse that is silly rather than scientific. On the page facing this good-humored hook into a child's curiosity are a labeled drawing of one animal and straightforward text that includes descriptions of the animal's physical characteristics, behavior (e.g., eating and mating), and habitats. A picture glossary explains how frogs and toads grow and discusses the hibernation of frogs and toads as well as providing anatomies of frogs, toads, and lizards and a view of the scalation of the lizard. Also included in this selection are a standard glossary, range maps for each of the species discussed, a classification chart, a bibliography, and a thorough index. This book is a fine choice for supplementary and reference material.

Patent, Dorothy Hinshaw. HUMPBACK WHALES. 32 p. $14.95. Holiday, 1989. (ISBN 0-8234-0779-9) Grades 3-6. Grade 3: CG 1. Grade 4: CG 2. Grade 5: CG 5. Grade 6: CG 5

Stunning color photography perfectly matches this clearly written text introducing younger readers to humpback whales in details about size, body parts, feeding and nurturing habits, migrations, and songs. In fact, the vivid, beautiful underwater photographs provide a flowing, parallel narrative all their own, made more useful by excellent captions. Information for elementary readers is often clarified by comparisons to familiar objects--e.g., the weight of a newborn whale calf is compared to the weight of a large station wagon. The book's concluding emphasis on preserving these unusual animals informs students that, although once there were 100,000 humpbacks, now there are approximately only 10,000. With the illustrations of Mark Ferrari and Deborah Glockner-Ferrari so specifically sequenced to complement content, this text will serve as a highly interesting resource, providing excellent introductory material for individual browsing or classroom use.

Patent, Dorothy Hinshaw. SINGING BIRDS AND FLASHING FIREFLIES: HOW ANIMALS TALK TO EACH OTHER. 32 p. $12.90. Watts, 1989. (ISBN 0-531-10717-5) Grades K-4. Grades K-4: CG 1

The concept of communication among a variety of wild animals and insects is the subject of a simple, direct text relating the known to the unknown. At the beginning, young readers are reminded of familiar ways of communicating which they will recognize at once, such as a smile or a friendly pat, growls, neighs, flattened ears. Communicating signals less familiar to them are then discussed and illustrated, including that of singing birds, fireflies, ants, and wolves. Singing, making specific sounds like whistling (squirrels and prairie dogs), or barking (a mother fox) are examples. Pleasant, full-color artwork by Mary Morgan illustrates each concept of animal communication. Soft, realistic drawings appear without background against the white space of

pages, making the text easy to read and the drawings well sequenced. It is unfortunate that not all species are equally well drawn--the fireflies lack convincing anatomical detail, for instance--but the point is quite clear in each instance, leaving no doubt about the mode of animal message. An index aids research.

Patent, Dorothy Hinshaw. WILD TURKEY, TAME TURKEY. 57 p. $14.95. Clarion Bks., 1989. (ISBN 0-89919-704-3) Grades 4-6. Grade 4: CG 2

Wild and domesticated turkeys are compared and contrasted in this volume. The author begins by exploring the history of the beautiful and intelligent wild turkey in North America and its eventual near extinction in some areas. Physical characteristics of both types are explored, and the wild turkey's eating, roosting, and courtship habits are chronicled. The daily life of domesticated turkeys and the processes involved in modern turkey farming are described. Ethical issues associated with the confined living conditions of domesticated turkeys are briefly addressed, leaving readers to draw their own conclusions. Colorful photographs, by William Munoz, and informative captions enhance the logically organized text. An index is included. This selection would be useful as a research tool or as part of a discussion of animal domestication.

Patent, Dorothy Hinshaw. YELLOWSTONE FIRES: FLAMES AND REBIRTH. 40 p. $14.95. Holiday, 1990. (ISBN 0-8234-0807-8) Grades 3-6. Grade 3: CG 1. Grade 5: CG 2. Grade 6: CG 5

In this detailed account of the extensive 1988 forest fires in Yellowstone National Park, the author discusses the particular conditions that led to the devastating fires, the valiant but difficult efforts of firefighters, the extent of damage to plants and wildlife, and the subsequent evidence of renewal at the park. A recurrent question addressed is "Should we put out fires?" While both sides of this issue are explored, the author provides much evidence of the ecological benefits of letting naturally caused fires run their course. Beautiful full-color photographs by William Munoz and others support the text, and an index is provided. The book would be well suited for use as a discussion starter, for individual reading by those interested in the subject, or for classroom units involving national parks or forest fires.

Pearce, Q. L. QUICKSAND AND OTHER EARTHLY WONDERS. (Amazing Science Series) 64 p. $9.74. Messner, 1989. (ISBN 0-671-68530-9) Grades 4-7. Grade 4: CG 4. Grade 5: CG 2 and 4. Grade 7: CG 4-7

Twenty-eight fascinating topics, from geysers, caves and caverns, plants without soil, the African baobab tree, to quicksand, moving continents, meat-eating plants, and more, support the old saying that "truth is stranger than fiction" in this collection of essays. Although information is not extensive, just one page per topic, the content is substantial and accurate, providing a springboard for further investigation. Full-page, colored illustrations, both expressive and scientifically accurate, often have labeled insets with further information. The highly readable, relaxed discussions assume interest is high and enthusiastically "respond" to engaged readers. A bibliography and index aid inquiry and research.

Peters, David. A GALLERY OF DINOSAURS AND OTHER EARLY REPTILES. 64 p. $14.99. Knopf, 1989. (ISBN 0-394-99982-7) Grades 4-8. Grade 4: CG 2

Superb color drawings highlight this illustrated overview of dinosaurs and prehistoric reptiles. Information about groups of dinosaurs and reptiles is organized by general category (e.g., early Archosaurs and the first turtle, early sea reptiles). An introductory section gives general background information about dinosaurs and the prehistoric environment. Following the introduction, each page features information about several dinosaurs or reptiles, including scientific name, phonetic pronunciation, a literal translation of the scientific name, class and family names, geologic period, fossil sites, size, and a paragraph or two describing the creature and how it lived. Each creature is illustrated on the same page as its description. All illustrations are drawn to scale, and occasionally young humans appear among the dinosaurs to provide a recognizable scale (the author does point out that humans were not around during the age of the dinosaurs). A useful glossary defines terms used in the book, and an index helps students locate specific creatures or topics. The readability level of the text will challenge younger students, but they will appreciate the excellent color illustrations. This book is a good choice for reference, general interest reading, or simply browsing through the illustrations.

Pringle, Laurence. SAVING OUR WILDLIFE. 64 p. $12.95. Enslow Pubs., 1990. (ISBN 0-89490-204-0) Grades 6-10. Grades 6 and 7: CG 5. Grade 8: CG 3. Biology: CG 5 and 7

This brief work provides essential information for research on endangered wildlife in North America. Basic factors in the survival of a species are discussed along with reasons that some populations die out. Efforts to save and manage wildlife, especially among hunting groups, wildlife preservationists, and the government, are discussed. Particular species and methods people have used to help them survive are described. Pringle's message is that there is no one answer to saving endangered wildlife and that all life is interrelated. Unexceptional black-and-white photographs illustrate the text. Also included are a list of further reading, a list of national organizations involved in saving wildlife, and an index. Students will find this book useful for basic research or supplemental reading.

Rainis, Kenneth G. NATURE PROJECTS FOR YOUNG SCIENTISTS. (Projects for Young Scientists) 142 p. $12.90. Watts, 1989. (ISBN 0-531-10789-2) Grades 6-12

Science experiments and nature projects organized around the five kingdoms of life. The first chapter explains the scientific method (which the author describes as observe, guess, test, and conclude), describes the classification of life forms, discusses microscopy, and provides important safety information. The following chapters present step-by-step directions for projects involving bacteria, fungi, one-celled organisms and other protists, plants, invertebrates, and vertebrates. The difficulty of projects varies; some projects are complex while others are simply ideas to try out and develop. The last chapter discusses current ecological concerns. Each chapter ends with a list of suggested reading. Also included are black-and-white photographs and diagrams, an extensive index, and an appendix of companies that are sources for equipment and supplies used in the projects. A useful resource for science projects.

Ryden, Hope. WILD ANIMALS OF AFRICA ABC. unp. $13.95. Lodestar Bks., 1989. (ISBN 0-525-67290-7) Grades K-3. Grade K: CG 2. Grades 1-3: CG 1

Color photographs, most taken in the wild but some in zoos, provide closeup portraits of twenty-six African animals alphabetically arranged from aardvark to zebra. Familiar animals such as the cheetah and ostrich are featured along with some unusual ones such as the klipspringer, unicornfish, and xoxo. An introductory page invites readers to learn more about these creatures and imagine their life in the wild. Concluding pages describe the eating and social habits of each animal. The format of the book will attract younger students, who will not be able to read or understand the introductory and concluding remarks by themselves.

Ryder, Joanne. CATCHING THE WIND. (Just for a Day Books) unp. $13.88. Morrow, 1989. (ISBN 0-688-07171-6) Grades K-3. Grades K-3: CG 1

This imaginative tale transforms the reader into a Canada goose for a single day. Soaring above the earth, the wild bird follows the flock on a bright autumn morning. As the journey progresses, the reader becomes familiar with the body features and flight habits of the goose. Finally, the goose turns back and returns the reader to a snug bed. Michael Rothman's excellent full-color illustrations in brilliant autumn tones complement the text. This unique and appealing presentation focuses on the experiences of the birds rather than on presenting detailed facts. The text has a lyric, poetic tone well suited for reading aloud to young children. This selection is an excellent choice for supplemental use by teachers or students.

Ryder, Joanne. WHERE BUTTERFLIES GROW. unp. $13.95. Lodestar Bks., 1989. (ISBN 0-525-67284-2) Grades K-2. Grades K-2: CG 1

A beautiful introduction to the miraculous transformation of egg to caterpillar to butterfly. Children are encouraged to imagine themselves as the tiny egg and then in all the other stages of growth up to the butterfly's first flight. The poetic text is filled with sensory images that allow children to more clearly feel what it is to be a butterfly at each particular stage of development. One full page of text at the end of the book discusses how to grow a garden that will attract butterflies. Beautiful, sensitive, detailed color illustrations by Lynne Cherry stimulate both knowledge of and appreciation for nature. A fine choice for elementary libraries and an excellent supplement to classroom discussions about nature.

Sattler, Helen Roney. THE BOOK OF EAGLES. 64 p. $14.88. Lothrop, 1989. (ISBN 0-688-07022-1) Grades 4-8. Grade 4: CG 2. Grade 7: CG 5

This beautiful, fascinating, and informative book brings readers close to the world of eagles. It begins by explaining the derivation of the word eagle, the scientific classification of eagles, which species live in the United States (the Bald Eagle and the Golden Eagle), and other general characteristics of eagles. The following chapters describe eagles as hunters (covering all of the physical characteristics that make these birds such strong hunters), courtship and nesting, growth of the eagle from egg to adult, and programs to help prevent extinction of the eagles. Also featured are a list of eagles by groups and genera, an illustrated glossary of eagles (each

entry describes color, weight, habitat, eating habits, courtship behavior, incubation period for eggs, and age at first flight), a list of suggested reading, and an index. Excellent color illustrations by Jean Day Zallinger provide vigor and excitement as well as visual information. A truly fine resource for libraries and classrooms.

Schlein, Miriam. PIGEONS. 48 p. $12.89. Crowell, 1989. (ISBN 0-690-04810-6) Grades 4-6. Grade 4: CG 2

Excellent black-and-white photography by Margaret Miller, historical drawings, and a text replete with unusual details combine to form an engaging look at the oft-ignored pigeon. The author closely examines city-dwelling pigeons by describing their physical features, eating and courting habits, and method of flight. A charming picture diary section records five weeks in the lives of two pigeons as they build a nest, hatch eggs, and nurture their chicks until they can survive on their own. Fascinating details about the exploits of carrier pigeons in war and peacetime are included. The book concludes with descriptions of unusual species of pigeons, a "pigeon album" collection of photographs, and a detailed index. This selection would be an interesting supplemental book for the science library and would be useful for minicourses or units involving birds or animal/human interaction.

Schoonmaker, Peter K. THE LIVING FOREST. (The Living World Series) 64 p. $13.95. Enslow Pubs., 1990. (ISBN 0-89490-270-9) Grades 7-12. Grade 8: CG 3. Biology: CG 7. Earth Science: CG 11

The ecology of major forest biomes north of the tropics is the focus of this text describing features of boreal, deciduous, temperate coniferous, and coniferous rain forests, as well as the plant and animal life found in each forest type. Our dependence on forests for wood products, recreation, and other essentials is addressed. Schoonmaker calls attention to threats to forest ecosystems, such as acid rain, disease, overharvesting, and climatic changes and disturbances. Black-and-white photographs are sometimes blurry and do not particularly serve the textual content; however, charts and graphs provide clear and helpful extensions. A glossary, suggestions for further reading, and a thorough index round out the book. Small print and a somewhat plodding tone may make this a difficult one with which to stay engaged--a book best used as a research tool for students interested in forest biomes. The solid facts are here.

Silver, Donald M. EARTH: THE EVER-CHANGING PLANET. (Library of Knowledge Series) 96 p. $12.99. Random, 1989. (ISBN 0-394-99195-8) Grades 4-6. Grade 5: CG 4 and 5

Superb artwork by Patricia Wynne invites even the most reluctant earth science student to browse through this clear, well-organized history of the earth's formation, the effects of weathering and erosion, the composition of the earth's inner core, and the theory of plate tectonics to explain the earth's surface features. A large, fully illustrated reference, the book begins by reviewing the four eras: Precambrian, Paleozoic, Mesozoic, and the current Cenozoic. Each era is pictured with representative flora and fauna above a continuous time line. Volcanoes, rocks, fossils, water, wind, sand, and the sea floor, among others, are topics vividly discussed and depicted. Information on gemstones, coal, and fault lines provides interesting subtopics. All graphics are well captioned and exceptionally useful, fully realizing the potential of cutaways, maps, diagrams, charts, and composites to

teach important concepts. A two-page spread entitled "Soil," for example, shows not only topsoil, subsoil, and substratum but also pictures the underground ecosystem of ants, moles, beetles, snails, grubs, earthworms, and nematodes living amid root systems, crumbled rock, weathering rocks, and bedrock. Donald Silver's crisp, descriptive writing is a compatible extension--and vice versa--of Wynne's vivid and distinct artwork. This one is a superior addition to collections for middle grades interested in earth science.

Simon, Seymour. NEW QUESTIONS AND ANSWERS ABOUT DINOSAURS. 48 p. $13.88. Morrow, 1990. (ISBN 0-688-08196-7) Grades 2-6. Grade 2: CG 3. Grade 3: CG 3. Grade 4: CG 2. Grade 5: CG 1. Grade 6: CG 1

Dinosaurs being the rage, popular children's writer Seymour Simon has contributed a captivating book aimed at the child's natural curiosity about these mysterious prehistoric animals. Designed in a question-answer format, this book is excellent to launch an investigative study of dinosaurs. Students can find answers to 22 questions. Were all dinosaurs giants? Where have dinosaur bones been found? How are dinosaurs named? What color were dinosaurs? (Maybe, suggests Simon, some had yellow, red, or orange spots or stripes like certain snakes and lizards today?) How smart were dinosaurs? (Maybe as smart as cats!) Each answer is extended by Jennifer Dewey's full-page drawings in a soft palette of colored pencils or pastels, which, although accurate in depictions of the reptiles, tend to romanticize or vaguely sketch their environment. Other features include an index with phonetic spelling beside every difficult term and a time line illustrating the length of time dinosaurs inhabited the earth. This one is a valuable research book with a perfect format for dinosaur-hungry students.

Smith, Norman F. HOW TO DO SUCCESSFUL SCIENCE PROJECTS. Rev. ed. 111 p. $10.98. Messner, 1990. (ISBN 0-671-70685-3) Grades 5-8. Grades 5-8: CG 1

Clearly written and well organized, this helpful book focuses on investigative projects as opposed to collections, posters, demonstrations, and models. Smith explains the difference between a demonstration and an experiment, discusses some possible areas of investigation (e.g., the weather and astronomy), suggests some specific topics, provides detailed instructions for planning an investigation, and tells how to choose equipment and test procedures. Methods of recording and graphing data are presented along with ample illustrations and sample charts and graphs. Sections on drawing conclusions and reporting results offer especially good advice on two rather daunting tasks. An appendix supplies samples of charts and graphs, and a bibliography and an index complete this fine book. Teachers may find this selection useful in helping their students carry out an investigative science project, and students will certainly find this an informative, reassuring, and useful resource.

Smith, Norman F., and Douglas W. Smith. SIMULATORS. (Venture Books) 126 p. $11.90. Watts, 1989. (ISBN 0-531-10812-0) Grades 6-12. Grade 6: CG 4. Grade 7: CG 9. Physical Science: CG 1

This book describes the history of simulators, how they work, and their uses in a variety of settings. Early chapters grab the reader's interest with realistic scenarios complete with dialogue and suspense that indicate the usefulness of simulated experience in flight practice and driver training. The authors also provide an intriguing chronicle of the development by Ed Link of the first airplane training device, initially sold to amusement parks and

later adapted by the Army. Technical aspects of simulator construction and operation are also discussed. Subsequent chapters explain the uses of simulators in military combat, spaceflight, sea navigation, and industry. Clear black-and-white photographs and several diagrams add interest and information. The book also includes a glossary and an index. This title has special appeal for students interested in computers, science, or machines, but many readers will appreciate the authors' conversational, "hands-on" adventure style and diverse topic selection.

Stwertka, Eve and Albert. GENETIC ENGINEERING. Rev. ed. (Impact Books) 144 p. $12.90. Watts, 1989. (ISBN 0-531-10775-2) Grades 9-10. Biology: 3 and 8

The revised edition of the 1982 book on developments in genetic engineering is interesting, a little scary, and complex, although accessible to biology students who have background in DNA and genetics. Those without particularly strong backgrounds in biology, however, will easily understand the examples which illustrate, such as the creation of insulin from a human intestinal microorganism and the genetic engineering of corn, rice, and other cereals. Much content is devoted to drug companies, researchers, and industries producing commercial products through biotechnical means. Also discussed are cloning and human genetic engineering, but the text concentrates on plant and animal advances. Well organized and concise, the content summarizes exciting new achievements, such as oil-eating bacteria produced to clean up oil spills and the ongoing research into human cloning. A final chapter entitled "Is It Safe, Is It Wise, Is It Moral?" raises moral and ethical questions that deeply trouble many people, concluding reasonably that whether the results of genetic engineering are destructive or beneficial will depend on those who direct it and on those of us who heed their work. Endnotes include some readily available sources, such as the New York Times and Scientific American, that would provide a wealth of information for advanced students. An extensive glossary and index assist. This book is especially useful for studies related to animal rights, embryonic rights, and ethics, and a strong choice for all high schools offering advanced biology.

Sullivan, George. HERE COME THE MONSTER TRUCKS. 64 p. $14.95. Dutton, 1989. (ISBN 0-525-65005-9) Grades 4-8

A sure high-interest/low-vocabulary winner or browsing item for those agog over motors, tires, and any kind of vehicle competition--in other words, the car-crazed, truck-tipsy types will love it. Sullivan's stripped-down text and photo-lavish pages capture the rough "sport" of monster trucking starring ordinary pickup trucks atop colossal tires, all of it powered by supercharged engines, which crush cars, pull sleds, do wheelies, and race through mud bogs at monster truck arena shows. Although the book discusses the expense and techniques of building and driving these titans, the bulk of the text and its large color photographs profile a number of trucks active on the professional competition circuit. Information on drivers and statistics about names, sizes, weights, costs, etc., provide a personalized look at the likes of "Godzilla," "Nightmare II," and "Bigfoot." A glossary and an index are appended. And the photograph of the lone woman driver in these competitions testifies to the old adage that looks deceive.

Vogt, Gregory. PREDICTING EARTHQUAKES. (Predicting Series) 112 p. $11.90. Watts, 1989. (ISBN 0-531-10788-4) Grades 6-12. Grade 6: CG 1. Grade 7: CG 6 and 7. Grade 8: CG 4. Earth Science: CG 3 and 8

An overview of seismology, Gregory Vogt's interesting account intersperses up-to-date scientific information with gripping accounts of devastation wreaked by major earthquakes around the world, including the 1988 quake in Armenia. Explained are origins of earthquakes, types of faults, types of seismic waves, and effects of tsunamis. The text also details the development of increasingly accurate instrumentation and methods for locating, measuring and forecasting earthquakes, including the use of space satellites. Historical black-and-white photographs and a large number of charts and diagrams boost comprehension. A thorough glossary, suggestions for further reading, and an exhaustive index extend this resource. Comprehensive and challenging, yet lively and well sequenced, this informative title may intimidate some middle school students with its vocabulary, but it will serve more than competently to provide detailed reference material for reports, independent study, enrichment, or preparation for units or minicourses on earthquakes.

Walker, Sally M. GLACIERS: ICE ON THE MOVE. (Nature Watch Books) 47 p. $12.95. Carolrhoda, 1990. (ISBN 0-87614-373-7) Grades 4-6. Grade 5: CG 4

Excellent color photographs and illustrations with captions accompany this volume on glaciers. Among the topics discussed are how glaciers are formed, how they move, how they become smaller or larger, different types of glaciers, and why ice ages occur. Occasional boxed-in sections of text provide interesting information on other topics, such as runaway glaciers, the dangers of icebergs, and how scientists study ice. Significant terms appear in boldface. A glossary and index complete the book. This attractive, clearly written selection offers good research material as well as an interesting read for science buffs.

Whitfield, Philip. CAN THE WHALES BE SAVED? QUESTIONS ABOUT THE NATURAL WORLD AND THE THREATS TO ITS SURVIVAL ANSWERED BY THE NATURAL HISTORY MUSEUM. 95 p. $16.95. Viking, 1989. (ISBN 0-670-82753-3) Grades 5-7. Grade 5: CG 2 and 5. Grade 6: CG 5. Grade 7: CG 5

A lovely book which speaks to serious and troubling issues, the focus is worldwide in its overview of environmental threats posed by man's abuse and misuse of the planet and its life. The title, alluding to just one environmental problem, serves as a symbolic question and general reference. A series of 119 questions, from "Why are some animals better at surviving than others?" to "What can ordinary people like me do to help save the planet?", provides the text. In between are questions and answers on such diverse topics as sea farming, the extraordinary colors of tropical fish, wetlands, oases, and much, much more. The importance of individual action--recycling, using biodegradable products, growing wild flowers, rejecting aerosol cans--is a theme amplified by the graphic and specific effects of human spoilage depicted in fine photographs, artwork, diagrams, and maps. A glossary and index extend this handsome, oversized book's usefulness.

Wilkes, Angela. MY FIRST NATURE BOOK. 48 p. $10.99. Knopf, 1990. (ISBN 0-394-96610-4) Grades 3-6. Grade 3: CG 1. Grades 4 and 5: CG 2

Approximately twenty activities presented in two-page segments provide students an introduction to nature. An introductory section explains how each segment is organized, how to use the book, and basic rules to remember when working (e.g., "Do not forget to water your plants and take good care of your animals."). The second section shows the basic items needed to work on the activities. Directions for each activity show the equipment and materials needed and provide step-by-step instructional photographs and text. Activities include making a bottle garden, sprouting seeds, making a caterpillar house, flower pressing, and making a worm farm. The final page is a "country code" that tells students how to be respectful of nature as they borrow from it. This oversize book may appear to be for younger children, but the vocabulary requires more sophisticated readers. Colorful photographs and clear instructions help make this volume a good source for science activities to be done individually or in small groups.

Yost, Graham. SPIES IN THE SKY. (World Espionage Series) 160 p. $16.95. Facts on File, 1989. (ISBN 0-8160-1942-8) (Available from Bemar) Grades 6-10. Grade 6: CG 4. Grade 8: CG 5

Author of the 1985 book Spy-Tech, Yost focuses in his latest publication on planes and satellites designed for gathering reconnaissance data, chiefly photographs, for military and governmental use. Arguing that the U.S. lacked a formal network for spying until World War II, Yost makes many interesting observations about CIA development during the Eisenhower years. The embarrassing U-2 incident of 1960, for example, is recounted in an excellent story-telling manner. Specific technical and scientific information occupies most of the chapters, but this work is extremely readable. Although the Cold War's apparent thaw and dissolution will color readers' impressions, the facts and history of military aerial espionage are here, from Civil War balloon reconnaisance to the Challenger disaster's effects on the program. Students who enjoy nonfiction espionage books will be willing to read this one on their own. Glossary and index extend the text's usefulness.

Books in a Series

Asimov, Isaac. ISAAC ASIMOV'S LIBRARY OF THE UNIVERSE SERIES. each 32 p. each $10.95. Gareth Stevens, 1990. Grades 3-6. Grade 3: CG 3. Grade 4: CG 5. Grade 6: CG 4

ASTRONOMY TODAY. (ISBN 1-55532-402-9)
COLONIZING THE PLANETS AND STARS. (ISBN 1-55532-372-3)
COMETS AND METEORS. (ISBN 1-55532-400-2)
MYTHOLOGY AND THE UNIVERSE. (ISBN 1-55532-403-7)
PILOTED SPACE FLIGHTS. (ISBN 1-55532-371-5)
PLUTO: A DOUBLE PLANET? (ISBN 1-55532-373-1)

Each book in this series is divided into two-page segments by topic. Captioned color illustrations and photographs accompany the text, and boxed inserts add additional bits of information. Each volume also contains a "fact file" segment that explores a topic in more depth (e.g., the spectrum or faded constellations). Also included are reading suggestions, a list of places to visit, organizations that supply more information, a glossary, and an index. Astronomy Today defines astronomy and describes the instruments and equipment

used by astronomers, the contribution of both professional and amateur astronomers, and the latest technology in astronomy (e.g., computer astronomy). Mythology and the Universe discusses the appearance of the sun and the moon in mythology; how mythological names came to be attached to planets, satellites, and asteroids; the response of ancient people to eclipses, comets, the polestars, and constellations; and the zodiac. Comets and Meteors covers comets, meteors, meteor showers, Halley's Comet, and the death of comets. Colonizing the Planets and Stars speculates about accomplishing this colonization and what life might be like for the people who attempt it. Piloted Space Flights reviews the history of space exploration and discusses astronaut training and problems associated with manned space flights. Pluto: A Double Planet? explains how Pluto was discovered, discusses its orbit, and considers its mysterious partner, Charon. Although some of the photographs and illustrations in this series do little besides take up space, the well-written text supplies appropriate supplementary and research material for young, earthbound space explorers.

BOOKS FOR YOUNG EXPLORERS. 4 titles each 32 p. $16.95. Natl. Geog., 1989. Grades K-3. Grades K-3: CG 1
AMAZING OTTERS; ANIMAL CLOWNS; ANIMALS OF THE HIGH MOUNTAINS; COTTONTAILS: LITTLE RABBITS OF FIELD AND FOREST

Animals--fascinating and irresistible--lure readers into a closer acquaintance with nature. Superb color photographs ensure that readers not only see the animals but also feel a strong sense of the nature they inhabit. Cottontails: Little Rabbits of Field and Forest discusses different types of cottontail rabbits: what they are like as babies, how they care for their young, a young rabbit's discovery of his world, physical characteristics, homes and resting places, and eating habits. Photographs of other types of wild and domestic rabbits, more detailed and sophisticated information about cottontails, and a list of suggested reading complete the volume. Amazing Otters follows the same general pattern, including the factual text at the end, with sea otters and river otters as its subject. Animal Clowns features animals that look slightly funny for one reason or another: meerkats, a moray eel, an emu, a crowned crane, a spoonbill, a shoebill stork, a chameleon, a night monkey, a bilby, clown fish, and the frilled lizard, among others. Animals of the High Mountains divides its subjects by continent and describes such animals as grizzly bears, mountain goats, guanacos, llamas, condors, rock hydraxes, mountain gorillas, and ibexes. These worthy additions to library shelves are both beautiful and informative, perfect for animal lovers and excellent classroom supplements.

Burton, Jane. HOW ANIMALS GROW! each unp. each $5.99. Random, 1989. Grades K-3. Grades K-3: CG 1
SNOWY THE BARN OWL. (ISBN 0-394-92268-9)
SUFER THE SEAL. (ISBN 0-394-92269-7)
_____. HOW YOUR PET GROWS! each unp. each $5.99. Random, 1989. Grades K-3. Grades K-3: CG 1
HOPPY THE TOAD. (ISBN 0-394-92270-0)
PACER THE PONY. (ISBN 0-394-92271-9)

With text and color photographs, each book in these series follows an individual animal (who is given a name) from birth to adulthood. The animal is described at several different ages so that readers can observe the gradual change from total dependency to independence. Readers learn what the animals look like as babies and adults, what they eat, and how they are cared for. Text is written in a narrative format that will feel comfortable to young

readers and listeners. Appropriate supplements to the science curriculum, these books can serve as individual reading for older students or as read-aloud material in small groups.

EYEWITNESS BOOKS. each 63 p. each $13.99. Knopf, 1989, 1990. Grades 4-6.
Grade 4: CG 2. Grade 5: CG 2 and 4
FISH (ISBN 0-679-90439-5); DINOSAUR (ISBN 0-394-92253-0);
FOSSIL (ISBN 0-679-90440-9); INSECT (ISBN 0-679-90441-7);
PLANT (ISBN 0-394-92252-2); SEASHORE (ISBN 0-394-92254-9)

Six new titles expand the popular Eyewitness Books series, focusing on science-related subjects of interest to students. From twenty-three to twenty-nine topics related to the main subject of each book are discussed. Following the established format of other titles in the series, single topics are treated in double-page spreads with one paragraph of text and numerous full-color photographs with captions. A table of contents and index expedite the location of specific information. The lack of in-depth coverage of a given topic prohibits use for serious research, but the books' visual appeal will certainly spur interest and promote further reading and research. An eye-catching series sure to attract students.

GREAT CREATURES OF THE WORLD. each 68 p. each $17.95. Facts on File, 1990. (Available from Bemar) Grades 4-12. Grade 4: CG 2. Grade 7: CG 5. Biology: CG 5 and 7
SHARKS (ISBN 0-8160-2270-4); WHALES (ISBN 0-8160-2271-2)

These oversized, lavishly illustrated books for older students provide information on the physical characteristics, habits, and environment of some of the earth's "great creatures." Each text examines the history and evolution of the animal, discusses eating habits, reproduction, defense mechanisms, relationships with people, uses and abuses, and famous legends and true stories. Full-color photographs fill the pages, aided by diagrams and other graphics, all of which are fully captioned and greatly extend the narrative content. The vocabulary level aims at secondary readers, but the excellent illustrations will capture the interest of students who cannot read the text. A great deal of information flows between text and captioned photographs and is highlighted by extensive question/answer information boxes that appear as insets throughout. Each chapter is two to eight pages long, depending upon the number of illustrations. These books are made up of short pieces on each topic rather than one cohesive unit, a feature geared toward snaring reluctant as well as avid science students. A glossary, list of scientific names, and an index aid research. A British import, the series excels at providing great chunks of scientific information in the least "boring," most painless way possible between the covers of a book. For example, did you know that whales probably began their evolutionary descent when some prehistoric, water-loving wolves (mesonychids) finally just took to the sea for good? Or that sharks delivering young are assisted by sucker fish who obligingly eat the placenta as each newborn pup breaks the umbilical cord and swims away? Try starting a few lessons with grabbers like those while holding up these large, eye-catching books opened to the relevant pages and photographs!

LIFE CYCLE SERIES. each 32 p. each $11.90. Bookwright Pr., 1989, 1990. (Available from Watts) Grades K-4. Grades K-3: CG 1. Grade 4: CG 2

THE LIFE CYCLE OF A BEE. (ISBN 0-531-18316-5)
THE LIFE CYCLE OF A CRAB. (ISBN 0-531-18317-3)
THE LIFE CYCLE OF A DUCK. (ISBN 0-531-18269-X)
THE LIFE CYCLE OF A GRASSHOPPER. (ISBN 0-531-18314-9)
THE LIFE CYCLE OF A LADYBUG. (ISBN 0-531-18292-4)
THE LIFE CYCLE OF AN OWL. (ISBN 0-531-18315-7)
THE LIFE CYCLE OF A SNAIL. (ISBN 0-531-18270-3)
THE LIFE CYCLE OF A SPIDER. (ISBN 0-531-18288-6)

Each of these books covers the life cycle of its subject from conception to adulthood. A basic physical description of the animal is provided, followed by brief discussions of such topics as habitats, eating habits, mating, nesting, caring for the young, and natural enemies. Children also learn where they might find and look at these creatures and in some cases (e.g., grasshoppers and snails) are told how to keep them at home in an aquarium. The life cycle of the animal is summarized visually on a separate page at the end, allowing students a chance to recall what they have learned in the book. A glossary, suggestions for further reading, and an index complete each book. Color illustrations, which are large enough for group presentation, are clear and accurate, adding a visual learning component. These well-organized books are excellent supplementary tools for teaching life cycles of animals. The media specialist may also find them helpful in teaching the function of the parts of nonfiction books (table of contents, index, etc.) because they are very manageable for beginning researchers.

Parker, Steve. THE HUMAN BODY SERIES. Rev. ed. each 48 p. each $12.90. Watts, 1989, 1990. Grades 5-8. Grade 6: CG 2. Grade 7: CG 3

THE BRAIN AND NERVOUS SYSTEM. (ISBN 0-531-14026-1)
THE EAR AND HEARING. (ISBN 0-531-10712-4)
THE EYE AND SEEING. (ISBN 0-531-10654-3)
FOOD AND DIGESTION. (ISBN 0-531-14027-X)
THE HEART AND BLOOD. (ISBN 0-531-10711-6)
THE SKELETON AND MOVEMENT. (ISBN 0-531-10709-4)
TOUCH, TASTE AND SMELL. (ISBN 0-531-10655-1)

Outstanding anatomical diagrams detailing the structure of the human body are the highlight of this colorful, instructive series. Each volume explains how selected parts of the body are structured, operate, and work with other body systems for human health, growth, and physical protection. Each also covers related information. For example, The Brain and Nervous System discusses learning, memories, mental health, and the aging brain. The Ear and Hearing includes segments on loss of hearing, equilibrium, gravity, and balancing. The Eye and Seeing addresses proper eye care, correcting vision defects, and how the brain interprets messages received from the eye. Digestive system disorders, food hygiene, nutrient transport, and the liver are described along with the major processes of digestion in Food and Digestion. The Heart and Blood offers explanations of the pacemaker, blood pressure, treatment of heart disease, lymph nodes and the spleen, and the artificial heart. The Skeleton and Movement discusses the wide range of movements performed by the bones, types of joints and muscles and their complex operation, and prevention of backaches and sports injuries. Touch, Taste and Smell explores the organs that produce these three sensations; the body's sensitivity to pain, touch, and smell; and the development of machines that simulate human senses. In each book, supplementary facts are included in colored, boxed areas adjacent

to the text. Informative captions accompany illustrations and photographs. A glossary with detailed definitions of keywords (noted in boldface type in the text) and an index make it easy to retrieve information on specific topics. The selections in this series offer excellent source material for research reports and classroom units in health and science.

PICTURE LIBRARY SERIES. each 32 p. each $10.90. Watts, 1989. Grades 3-5.
Grade 3: CG 3. Grade 5: CG 4
MOUNTAINS. (ISBN 0-531-10838-4)
POLAR LANDS. (ISBN 0-531-10839-2)
RIVERS AND LAKES. (ISBN 0-531-10840-6)
VOLCANOES. (ISBN 0-531-10841-4)

Four of a series of books that provide equal amounts of text and illustration in giving overviews of their subjects. Each begins with a brief introduction to the topic. Mountains then provides charts and drawings that illustrate the location of the world's mountain ranges, the formation of mountains, and the relationship between climate and height above sea level. Also discussed are kinds of mountains; various mountain ranges; animal, plant, and human life on mountains; mountains under the sea; and mountains and leisure. Completing this volume (as well as the other three) are a section of more detailed text describing the subject, a segment on facts and records connected with the subject, a glossary, and an index. Polar Lands explains why it is cold at the poles and discusses the Arctic Circle, the Antarctic, life in polar lands, research in these cold regions, and possibilities for the future there. Volcanoes considers volcanic materials, types of volcanoes, types of eruptions, the effects of eruptions, geysers and hot springs, and volcanoes on other planets. Rivers and Lakes discusses how rivers shape the land, how they affect civilization, how lakes are formed, methods of controlling a river, and life around rivers and lakes. These volumes are appropriate for reference collections and will probably find use as resources for simple reports or oral presentations.

PICTURE WORLD SERIES. each 29 p. each $11.40. Watts, 1989, 1990. Grades 2-5.
Grades 2-3: CG 3
AIRLINERS (ISBN 0-531-10724-8); BMX (ISBN 0-531-10725-6);
HELICOPTERS (ISBN 0-531-10726-4); MOTORCYCLES (ISBN 0-531-10727-2);
RACING CARS (ISBN 0-531-10728-0); SUBMARINES (ISBN 0-531-14011-3);
TRUCKS (ISBN 0-531-10729-9)

Identical formats and clear presentation characterize this series. Each book introduces the topic and then describes kinds, specialized versions, and uses of these transportation vehicles, with excellent color photographs illustrating each type. Text is in large, bold print while informative picture captions are in normal print. Two pages of facts, a glossary, and an index complete each book. This attractive series is suitable for simple research and reports and may have value as a high interest/low vocabulary choice for reluctant readers in middle school.

Spangenburg, Ray, and Diane Moser. SPACE EXPLORATION SERIES. each 100-114 p. each $22.95. Facts on File, 1989, 1990. (Available from Bemar) Grades 7-12. Grade 7: CG 9. Grade 8: CG 5. Earth Science: CG 9 and 10

OPENING THE SPACE FRONTIER. (ISBN 0-8160-1848-0)
LIVING AND WORKING IN SPACE. (ISBN 0-8160-1849-9)
EXPLORING THE REACHES OF THE SOLAR SYSTEM. (ISBN 0-8160-1850-2)
SPACE PEOPLE FROM A TO Z. (ISBN 0-8160-1851-0)

Students interested in space exploration will find much of interest in this series. Opening the Space Frontier traces the history of space flight from Goddard's first rocketry experiments through development of the German V-2 and finally to the end of the Apollo moon program in 1972. The book is divided into three parts: "The Early Years" covers the first scientists who experimented with rockets; "Sending Humans Into Space" relates the stories of test pilots who flew X-planes to the edge of space and the unmanned satellites that started the space race; and "Taking the Giant Step to the Moon" describes the Mercury, Gemini, and Apollo moon flights and Soviet Vostok, Voskhod, and Soyuz orbital missions. Alternate chapters chronicle the successes and failures of both programs in an objective manner. Living and Working In Space tells the story of the conception and building of the Salyut, Skylab, and Mir space stations and their missions. A chapter is devoted to the U.S. space shuttle program and includes the Challenger disaster. A section of the book details the launches and mission of earth orbiting satellites. The authors also discuss the planned American Spacelab; plans for aerospace planes; Soviet, European, and Japanese versions of the space shuttle; an exploration of Mars; and possible colonies on the moon and Mars. Space People from A to Z is a biographical dictionary of important people in the field of space exploration. Included along with astronauts and administrators are science fiction writers and pioneers in rocketry. Exploring the Reaches of the Solar System concentrates on the exploration of the planets and moons. The authors give the commonly held view of each planet prior to its exploration and how that view changed based on information gathered by space probes. The objectives and accomplishments of individual space probes are described in detail. Unanswered questions about the planets conclude each section. The authors briefly cover the earth, asteroids, comets, and other stars without discussing space probes that specifically studied these bodies. Although this volume contains eight pages of spectacular color photographs, the selection of black-and-white photographs is poor. The authors describe the spectacular monochrome photographs taken by early space probes but do not include them. The books in this series are each illustrated with eight pages of color photographs, average quality black-and-white photographs, and many line drawings. Each contains an appendix of manned space missions (except Exploring the Reaches of the Solar System), a glossary of terms, suggestions for further reading, and an index. The authors are guilty of minor lapses of accuracy and have omitted some important information for the sake of brevity. Despite these flaws the series is an excellent reference resource for students and teachers studying space exploration. Students will find the excellent indexes and appendices helpful in locating information and preparing reports about the exploration of space.

STOPWATCH BOOKS. each 25 p. each $9.98. Silver Burdett Pr., 1989, 1990. Grades K-4. Grades K-3: CG 1. Grade 4: CG 2
DRAGONFLY (ISBN 0-382-09799-8); HONEYBEE (ISBN 0-382-24011-1); STRAWBERRY (ISBN 0-382-09801-3); TOMATO (ISBN 0-382-24008-1)

Books in this series portray the growth and development of common plants and insects. Detailed color photographs on right-hand pages are matched on the left with explanatory text and smaller illustrations. Caption-style text (useful for reading to younger students or as a focusing tool for less experienced readers) summarizes the full-page picture while short paragraphs of smaller print text provide elaboration, ask questions, or cue students to look carefully at the smaller pictures (typically more distant views or drawings of the full-page photograph, or simple diagrams with one or two parts labeled or measured). Text in Tomato, for example, complements successive photographs of a group of tomatoes, a cut tomato with seeds, the sprouting of a seed, the opening of leaves, the growth of additional leaves, closeups of the flower buds, the opening of the flower buds on the plant, a closeup of a flower for pollination, a tiny tomato with faded petals, the ripening and growth of several tomatoes, and a single fully ripe tomato. Each book starts with typical experiences (such as tasting strawberries or seeing a dragonfly) and provides a focusing statement (like "This book will tell you how tomatoes grow."). The books conclude with a review page that encourages students to retell the story using the pictures in sequence as a guide, a simple activity children can do on their own (such as watch a tomato ripen in a window or look for dragonfly skins near a pond), and an index of important words. Captivating photographs and two levels of text give these books appeal and versatility at several grade levels for reading aloud, individual browsing, or use in classroom centers. Media coordinators will find them handy for presenting the features of nonfiction books.

VOYAGE THROUGH THE UNIVERSE. each 144 p. each $17.45. Time-Life, 1988, 1989. (Available from Silver Burdett Pr.) Grades 7-12. Grade 7: CG 9. Grade 8: CG 5. Earth Science: CG 9. Physics: All competency goals
THE COSMOS (ISBN 0-8094-6863-8); THE FAR PLANETS (ISBN 0-8094-6955-7); LIFE SEARCH (ISBN 0-8094-6867-0); THE NEAR PLANETS (ISBN 0-8094-6871-9); STARS (ISBN 0-8094-6859-X)

A series designed to examine nearly all general and many specific space topics, this set is exceptionally superior in both text and graphics. THE COSMOS explores general questions about space and time, giving a full description of Einstein's theory of relativity, the setting for its development, and the resulting academic events, including Grand Unification Theories (GUT). Physicists, astronomers, mathematicians, and cosmologists who contributed to the general body of knowledge are profiled in some depth. STARS reviews how stars form, star stages and shapes, and observations about our sun, all of it dramatized by a grand photographic section capturing the moment of catastrophe as a star becomes a supernova and explodes (SN1987A as it came to be known). Neutron stars and black holes are discussed also. THE NEAR PLANETS recounts theories about Mercury, Venus, and Mars. THE FAR PLANETS looks at Jupiter, Saturn, Uranus, Neptune, and Pluto. All kinds of information--atmosphere, moons, asteroids, the rings of Saturn, the proposed tenth planet--provide content. LIFE SEARCH reviews the basics required for life as we know it and the range of habitats within the system of our sun. Spectacular comparison charts on the various environs offered within our solar system illuminate the essays. The last chapter probes the notion of cosmic companions or other life forms. This volume is truly the most interesting of

the series for the casual reader. Beautiful books, these titles are a treat for any reader or browser, regardless of age or grade level. However, to maximize the use of this purchase, buyers should have a student population of high school age and/or academically gifted science students. No endnotes accompany any volume, but an extensive bibliography of books and periodicals as well as a thorough index and a lengthy glossary will assist the inquiring student with each book.

WHERE ANIMALS LIVE SERIES. each 32 p. each $9.95. Gareth Stevens, 1989, 1990. Grades 3-7. Grade 3: CG 1. Grade 4: CG 2. Grade 6: CG 5. Grade 7: CG 1 and 5

THE WORLD OF ANTS. (ISBN 0-8368-0136-9)
THE WORLD OF BATS. (ISBN 0-8368-0137-7)
THE WORLD OF EAGLES. (ISBN 0-8368-0138-5)
THE WORLD OF ELEPHANTS. (ISBN 0-8368-0141-5)
THE WORLD OF HONEYBEES. (ISBN 0-8368-0142-3)
THE WORLD OF HUMMINGBIRDS. (ISBN 0-8368-0140-7)
THE WORLD OF POLAR BEARS. (ISBN 0-8368-0139-3)
THE WORLD OF SNAKES. (ISBN 0-8368-0143-1)

Outstanding color photographs by Oxford Scientific Films taken in the natural habitats of animals are the highlight of a series of eight books, each of which focuses on one animal and how it feeds, interacts with others of its species, reproduces, and protects itself from enemies. Each book also describes and diagrams the food chain in which the animal participates. These books do more than present the biological facts, in fact offering a wider view of these familiar species which encourages humane, informed respect for life forms not necessarily lovable or even welcome. For instance, young readers will enjoy learning about those pesky picnic and kitchen cupboard crashers, the ant family, whose cooperative social behavior in the colony offers a subtext for human groups. THE WORLD OF BATS sympathetically describes an often maligned creature's nocturnal lifestyle, hibernation, and use of echolocation to find its way in the dark. THE WORLD OF POLAR BEARS chronicles the semiaquatic, migratory life of this diminishing species and the growth of young cubs after their birth in a cozy snow den. Each text addresses problems of environmental destruction and the hand of humans in threatening the existence of animals such as bats, eagles, and polar bears. All eight stress the delicate balance of nature which, ideally, serves and protects each of these species. The glossary-index is a weakness (only specialized words which need definitions appear). Omitted are basic categories of information usually indexed. Excellent introductory material or browsing content, the series best fits a visual need for closeup, color-accurate, detailed photography of animals in native habitats.

BOOKS (FOR TEACHER USE)

Freethy, Ron. SECRETS OF BIRD LIFE: A GUIDE TO BIRD BIOLOGY. 232 p. $12.95 paper. Blandford Pr., 1990. (ISBN 0-7137-2154-5) (Available from Sterling)

A British import, this guide to bird biology offers plentiful information on bird classification, biology, and behavior, all of which benefits from many well-labeled black line drawings, black-and-white photographs, and a center section of color photographs. A good source for specialized information lacking in encyclopedias or more general bird manuals, this text is well

organized for use by high school students. Covered are evolution, classification, anatomy, flight, breathing, respiration, blood supply, feeding, the nervous system, breeding, migration, behavior, distribution, and birds and people. The illustrations, drawings, and charts add immensely to the author's comparisons of orders. The text is not easy and has that fine-print, dense appearance upon scanning which sends weak or lazy readers scurrying, so the book's best use will be as a source for honors biology students and for biology teachers. The British slant is obvious in spellings and usage ("colouring," "behaviour," "whilst"), and that photo of a flock of penguins "on South Georgia" does not refer to the land of peaches and palmettos. But the comprehensiveness and sophistication of the content are pluses enough.

Gibbons, Bob. THE SECRET LIFE OF FLOWERS: A GUIDE TO PLANT BIOLOGY. 160 p. $12.95 paper. Blandford Pr., 1990. (ISBN 0-7137-2168-5) (Available from Sterling)

Another British import, this sturdy paperback examines the anatomy and plant behavior of flowers in a sophisticated text aided by a few superb color photographs and more numerous black line diagrams. A well-annotated table of contents is a virtual description in itself of the book's function: a full discussion of the evolution and classification of plants, their structure, their day-to-day life and reproduction, the development of seed and fruit and their dispersal, the life cycle, a fine discussion of plant ecology, and an interesting chapter on plants and people, including plants used for medicines, spices, and perfumes, as well as a short closing comment on conservation and extinction. Examples chosen to illustrate the text, both narratively and graphically, appear to be native to North America, but the bibliography containing solely British references is useless to most schools. And the point of view assumes a British readership, beginning sentences with such orienting phrases as "Nearer to home, in Northern Europe and Britain," etc.; likewise the "we" of the controlling voice is always British. So why buy this difficult, well-illustrated handbook? It is thorough and excellent in the essentials of flowers and flowering plants, the universals of plant anatomy, behavior, and pathology. Its very Britishness expands our global awareness in an environmentally threatened world whose boundaries are shrinking every day. Teachers of honors biology classes studying flowers in detail will use this book, as will enterprising students for whom the glossary and index are guides to information for reports or background research for science projects.

BOOKS (REFERENCE)

ENCYCLOPEDIA OF THE ANIMAL WORLD. each 96 p. each $17.95. Facts on File, 1990. (Available from Bemar) Grades 6-12. Grade 7: CG 2, 4, and 5. Grade 8: CG 2. Biology: CG 3, 4, and 5
FISH (ISBN 0-8160-1966-5); INSECTS AND SPIDERS (ISBN 0-8160-1967-3); PETS AND FARM ANIMALS (ISBN 0-8160-1969-X); SIMPLE ANIMALS (ISBN 0-8160-1968-1)

Four volumes from a clearly organized, fact-filled series describing a variety of species and/or breeds within each major category. Each volume contains superb color photographs and illustrations with detailed captions. A fact panel at the beginning of each article in a volume contains information about such topics as group size, conservation status, habitat, diet, distribution,

breeding, size, color, and species mentioned in the text. The approximately twenty-five articles in each volume cover physical characteristics, diet, reproduction, and other information about behavior and lifestyle. A glossary, an index of common names, an index of scientific names, and a list of suggested reading complete each book. Fish presents an introduction to types of fish, how fish swim and breathe, their diets, finding food, reproduction, and defenses before offering articles on specific species, including lampreys, sharks, eels, herrings, salmon, carp, perch, tuna, barracudas, and flatfish. Insects and Spiders provides a general overview of insects before describing such creatures as millipedes, dragonflies, cockroaches, termites, mantids, crickets, lice, beetles, fleas, flies, moths, butterflies, ants, bees, scorpions, spiders, and ticks. Pets and Farm Animals discusses dogs, cats, donkeys, horses, ferrets, rats, mice, hamsters and gerbils, guinea pigs, rabbits, canaries and finches, budgerigars, pigeons, goldfish, tropical fish, cattle, water buffalos, sheep, goats, pigs, chickens, turkeys, ducks and geese, and bees. Simple Animals contains an introduction to invertebrates and includes articles on, among others, protozoans, sponges, corals, worms, leeches, barnacles, shrimps, crabs, slugs, clams, starfish, and sea urchins. These attractive, informative reference volumes should be well used.

Hamilton, W. R., et al. THE HENRY HOLT GUIDE TO MINERALS, ROCKS, AND FOSSILS. 320 p. $12.95 paper. H. Holt & Co., 1989. (ISBN 0-8050-1118-8) Grades 9-12. Earth Science: CG 2, 4, and 5

Minerals, rocks (including meteorites and tektites), and fossils of the world fill the well-illustrated pages of a handbook strong in scope and detail. Excellent color photographs of over 600 specimens as well as many, many drawings and cross sections clarify and identify the examples of these major classifications. Everything for a quick reference is here--chemical symbols, statistics, terminology, location, condensed but essential information on identifying features--all in good print and wide margins on pages facing those same entries with photographs of each one of them. Remarkable clarity and color distinguish the photography. The fossil section is fascinating. An introduction, index, and complete table of contents are particularly useful.

THE MARSHALL CAVENDISH INTERNATIONAL WILDLIFE ENCYCLOPEDIA. 24 volumes $449.95. Marshall Cavendish, 1989. (ISBN 0-86307-734-X) Grades 7-12

A twenty-four volume set with over 1,000 detailed entries on animals as well as in-depth descriptions of the earth's continents. Each article discusses physical characteristics, habitats and locations, feeding habits, reproduction, daily living habits, and natural enemies along with unique characteristics of the animal. The lengthy sections on continents (and also on the island of Madagascar) look at such topics as geography, geology, climate, landscapes, vegetation, animal life, and animal distribution. Articles on related topics such as behavior, cells, coloration, conservation, endangered animals, evolution, fossils, migration, wildlife parks and reserves, and zoos also appear throughout the series. Color photographs (and some black and white) with informative captions accompany each article; discussions of continents also include color maps. Volume 1 includes a list of animals covered in the series. Volume 24 contains three indexes (an animal index, a subject index, and a systematic index in which animals are identified by their classification), a selected list of endangered species discussed in the encyclopedia, an annotated list of major wildlife refuges and parks, a list of some of the world's largest zoos, a periodicals bibliography, an adult bibliography organized by topic, and a student bibliography arranged in the

same manner. Organization of material in this encyclopedia is sometimes eccentric and less than purposeful, and readers may wonder at the inclusion of several breeds of domesticated dogs in research volumes on wildlife. But there is plenty of detailed and interesting material here that will be of value to researchers and of fascination to browsers. Teachers may want to alert students that these imports use British spelling and punctuation conventions.

Oliver, A. P. H. THE HENRY HOLT GUIDE TO SHELLS OF THE WORLD. 320 p. $12.95 paper. H. Holt & Co., 1989. (ISBN 0-8050-1119-6) Grades 6-12

Here is both a colorful reference for shell collectors and an authentic and comprehensive handbook for amateurs or professionals, containing all that they might ever want to know about the most common and available or the most exquisite and rare shells. James Nicholls' illustrations of 1,000-plus species in full-color detail are so faithfully accurate that only close scrutiny reveals that brushes, not cameras, produced them. Specimens represent six classifications, but the majority of the book is devoted to shells in four orders of the Gastropoda class. Pictures of shells appear on every other page, facing a page of text describing them. Text entries give scientific names, names of collectors who first found specific shells, dates of finds, geographic locations, and physical characteristics--size, texture, color. Among excellent reference features are a helpful introduction, a bibliography, glossary, maps, and an index. The "Compleat Sheller."

Pearce, Q. L. THE KIDS' SCIENCE DICTIONARY. 116 p. $12.95. Childrens, 1989. (ISBN 0-516-09616-8) Grades 2-5

With its many colorful illustrations and large, dark print, Pearce's eclectic science dictionary will be popular with younger students looking for brief, uncomplicated definitions. Over 700 terms offer clear and simple meanings often followed by bits of information putting definitions into interesting contexts. Unstinting, brightly colored drawings serve as stimuli to heighten a child's interest. For example, evolution is defined as "a process of gradual change in the genetic makeup of a species, resulting from the reproductive success of the individuals best suited to survive the conditions at hand." Under this information are colored drawings showing the order of evolution of a rather piggish-looking moeritherium into a fascinatingly ugly woolly mammoth, into our modern elephant. The limitation of this dictionary is its deliberately restricted coverage so that entries regarding clouds, for instance, include cirrus, stratus, and cumulus but neglect that interesting variation cumulonimbus. Its limits aside, strengths include a well-developed pronunciation key, a phonetic spelling for each term, and the part of speech identified for each term. This one is an attractive browsing item which sandwiches a lot of good information into an eye-appealing format for young science buffs.

Ronan, Colin A., and Storm Dunlop. THE SKYWATCHER'S HANDBOOK: NIGHT AND DAY, WHAT TO LOOK FOR IN THE HEAVENS ABOVE. 224 p. $13.95 paper. Crown, 1989. (ISBN 0-517-57326-1) Grades 9-12. Earth Science: CG 6, 9, and 10

Divided into three parts, the manual for skywatchers first examines "The Daylight Sky," covering all forms of weather and the sun. A rainbow, clouds, and lightning are subjects of some of its more striking photographs. An entry on mirages includes a haunting photograph of a desert mirage. The second part, "The Night Sky," concentrates on stars and major planets. Sixteen star

charts are provided for a night sky watcher, plus a discussion of nebulae and clusters, comets, double stars, and satellites. The last section, "Observing and Recording the Sky," gives advice on photographing both day and night skies, using binoculars and telescopes, setting up a home observatory, and recording observations. Most of this book appears to be drawn from a 1985 publication, and, although the material is not so technical as to make a significant difference for young enthusiasts, other titles with more recent copyrights may cover the same content in a simpler manner. Color and black-and-white photography and graphics are well produced and, frankly, are the feature that gives the book its value for schools. Appendices include a glossary, an index, and other quite useful information, such as future positions of the planets and solar and lunar eclipses over the world from 1985 to 2000. And this one is a true handbook, manageable in one hand.

Ross, Charles A., ed. CROCODILES AND ALLIGATORS. 240 p. $35. Facts on File, 1989. (ISBN 0-8160-2174-0) (Available from Bemar) Grades 9-12. Biology: CG 4, 5, and 7

This beautiful, oversize book provides a thorough, detailed discussion of crocodilians. Individual chapters with different authors are grouped under three major headings. "Evolution and Biology" discusses living relatives of crocodilians, principles of scientific animal classification, geological time, fossils, the evolutionary history of crocodilians, physical structure and functioning, and living crocodilians (with a description of appearance, size, habitat, distribution, reproduction, and diet given for each species). "Behavior and Environment" covers food and feeding habits, metabolism, mortality and predators, social behavior, courtship, reproduction, and habitats. "Crocodilians and Humans" explores the role of crocodilians in mythology, religion, art, and literature; attacks on humans (with safety precautions for anyone visiting an area with crocodilians); products made from crocodile skin; trade in crocodilians; farming and ranching; conservation and management; and endangered species. A checklist of living crocodilians, a bibliography, notes on contributors, and an extensive index complete the volume. Crocodiles and Alligators explores its subject in depth and contains a massive amount of information for researchers. An excellent addition to reference and science collections.

BOOKS (SUPPLEMENTARY TEXTS)

Books (Supplementary Texts) in a Series

BREAKTHROUGHS: STRATEGIES FOR THINKING. pupil books each 24 p. each $4.50 paper. each teacher ed. $19.95 paper. blackline masters each $6.95. Zaner-Bloser, 1990. Grades 1-8. Grades 1-3: CG 1. Grade 2: CG 2. Grade 4: CG 2. Grade 6: CG 2 and 5

- GRADES 1-2: FORESTS, FEATHERS, FIELD MICE, AND YOU?
- GRADES 2-3: DO GERMS GET YOU?
- GRADES 2-3: HAVE YOU SEEN A ZIGONGOSAURUS?
- GRADES 2-3: SAFETY IN COLORS?
- GRADES 2-3: SHOULD BUGS BUG YOU?
- GRADES 2-3: TINY CRACKS, TOWERING TREES?
- GRADES 3-4: IMAGINATION OR INVENTION?
- GRADES 4-6: FOREST FIRES: DISASTER OR NOT?
- GRADES 4-6: MARTIANS--FACT OR FICTION?
- GRADES 4-6: WHERE HAVE ALL THE CONDORS GONE?
- GRADES 6-8: DOLPHINS--OUR NEWEST ALLIES?
- GRADES 6-8: TRASHED IN SPACE?
- GRADES 6-8: YOUR HEALTH, YOUR HEART, AND YOU?

BREAKTHROUGHS: STRATEGIES FOR THINKING is a series of interdisciplinary units with a critical thinking emphasis designed to supplement instruction in social studies, science, math, reading, and language arts. Different titles (or units) are available for grades one through eight, covering subjects such as maps and map reading, ecosystems, market research, communities, recycling, conservation, endangered species, population problems, health concerns, and archaeology. A student book, a teacher guide, and a booklet of reproducible worksheets are available for each unit. The twenty-four page student booklets typically include a short "Literature Connection," a focusing activity, several lessons, and a glossary. For example, the third grade unit "Tiny Cracks, Towering Trees?" begins with a poem about an acorn and a focusing question that requires students to predict content and set learning goals. Three lessons follow that deal with what trees need to grow, the breakdown of rocks by vegetation, and the life cycle of trees. In the lessons, students read, examine a variety of visual materials in color (drawings, photographs, graphs, and charts), use vocabulary in context (including terms for thinking processes such as summarizing and elaborating), and complete brief activities and graphic organizers. Students can either write in the student booklets (which contain lines and spaces for writing, drawing, or listing) or use corresponding activity pages reproduced from the separate worksheet booklet (so that student booklets can be reused). In this unit on trees, students complete a comparison chart, identify patterns and relationships, construct a bar graph, complete a series of events chain, answer questions to summarize and elaborate, review thinking strategies used in the unit, and discuss a new application, the adaptation of the cactus to desert conditions. The teacher edition includes the student text (with answer keys), summarizes unit issues and concepts, and lists thinking processes and strategies used (based on terminology established by the Association for Supervision and Curriculum Development). The guide also suggests additional resources and extension activities; organizes lessons in phases of student engagement, content presentation and clarification, and extension activities; states instructional

objectives; and suggests lines of questioning and modeling. The series' senior author, Beau Fly Jones, has written extensively on cognitive instruction and the use of graphic representation in the content areas. This series is designed for classroom instruction. Titles can be purchased separately. If student books are to be reused, worksheet booklets with reproducible masters should be purchased.

BOOKS REVIEWED IN OTHER SOURCES

The books listed below have received favorable reviews in one or more of the following reviewing sources. Code letters for the reviewing sources are cited after the bibliographic entry for each title. The reviewing sources and their code letters are as follows:

BOOK REVIEW DIGEST	BRD
BOOKLIST	BKL
BULLETIN OF THE CENTER FOR CHILDREN'S BOOKS	BCCB
HORN BOOK	HB
HORN BOOK GUIDE	HBG
KIRKUS REVIEWS	KR
LIBRARY JOURNAL	LJ
NEW YORK TIMES BOOK REVIEW	NYTBR
SCHOOL LIBRARY JOURNAL	SLJ
SCIENCE BOOKS & FILMS	SBF
WILSON LIBRARY BULLETIN	WLB

An asterisk after the code letters for the reviewing source indicates that the title was highly recommended in that particular reviewing source.

Aliki. MY FIVE SENSES. Rev. ed. (Let's-Read-and-Find-Out Science Books) 32 p. $12.89. Crowell, 1989. (ISBN 0-690-04794-0)) Grades K-1. HBG SLJ

Behrens, June. DOLPHINS! 47 p. $9.95. Childrens, 1989. (ISBN 0-516-00517-0) Grades 2-4. BKL SLJ

Bruun, Ruth Dowling and Bertel. THE BRAIN: WHAT IT IS, WHAT IT DOES. 63 p. $11.88. Greenwillow, 1989. (ISBN 0-688-08454-0) Grades 1-3. BKL HBG KR SBF* SLJ

Churchill, E. Richard. OPTICAL ILLUSION TRICKS AND TOYS. 128 p. $11.95. Sterling, 1989. (ISBN 0-8069-6868-0) Grades 5-10. BKL SLJ

Fischer-Nagel, Heiderose and Andreas. A LOOK THROUGH THE MOUSE HOLE. (Nature Watch Books) 47 p. $12.95. Carolrhoda Bks., 1989. (ISBN 0-87614-326-5) Grades 3-5. BKL HB HBG NYTBR SBF SLJ

Hirschi, Ron. WHAT IS A HORSE? unp. $12.85. Walker & Co., 1989. (ISBN 0-8027-6877-6) Grades K-3. BKL HBG SLJ

Hirschi, Ron. WHERE DO HORSES LIVE? unp. $12.85. Walker & Co., 1989. (ISBN 0-8027-6879-2) Grades K-3. BKL HBG SLJ

Ingram, Jay. TWINS. (Amazing Investigations Series) 96 p. $12.95. S&S, 1989. (ISBN 0-671-66263-5) Grades 4-8. SLJ

Kellogg, Cynthia. CORN: WHAT IT IS, WHAT IT DOES. 47 p. $11.88. Greenwillow, 1989. (ISBN 0-688-08026-X) Grades 1-3. BKL HBG KR SLJ

Krensky, Stephen. BIG TIME BEARS. unp. $14.45. Little, 1989. (ISBN 0-316-50375-4) Grades K-1. BKL HBG KR SLJ

Lavies, Bianca. IT'S AN ARMADILLO! unp. $13.95. Dutton, 1989. (ISBN 0-525-44523-4) Grades K-2. BKL HBG KR SLJ

Maestro, Betsy. SNOW DAY. unp. $12.95. Scholastic Inc., 1989. (ISBN 0-590-41283-3) Grades K-3. BCCB BKL KR SLJ

Mandell, Muriel. SIMPLE SCIENCE EXPERIMENTS WITH EVERYDAY MATERIAL. 128 p. $11.95. Sterling, 1989. (ISBN 0-8069-6794-3) Grades 3-6. SLJ

Markle, Sandra. POWER UP: EXPERIMENTS, PUZZLES, AND GAMES EXPLORING ELECTRICITY. 40 p. $13.95. Atheneum, 1989. (ISBN 0-689-31442-6) Grades 3-6. BKL HB HBG SBF SLJ

Murphy, Jim. CUSTOM CAR: A NUTS-AND-BOLTS GUIDE TO CREATING ONE. 96 p. $14.95. Clarion Bks., 1989. (ISBN 0-89919-272-6) Grades 8-12. KR SLJ

Parnall, Peter. CATS FROM AWAY. unp. $13.95. Macmillan, 1989. (ISBN 0-02-770150-6) Grades 2-6. BKL HBG KR SLJ

Patent, Dorothy Hinshaw. GRANDFATHER'S NOSE: WHY WE LOOK ALIKE OR DIFFERENT. (Discovering Science Books) 32 p. $12.90. Watts, 1989. (ISBN 0-531-10716-7) Grade 2-5. BKL HBG SLJ

Penny, Malcolm. ANIMAL ADAPTATIONS. (The Animal Kingdom Series) 32 p. $11.90. Bookwright Pr., 1989. (ISBN 0-531-18222-3) (Available from Watts) Grades 3-5. BKL

Phelps, Tony. POISONOUS SNAKES. Rev. ed. 237 p. $17.95 paper. Blandford Pr., 1989. (ISBN 0-7137-2114-6) (Available from Sterling) Grades 10-12; teacher use. BKL BRD LJ SBF

Pringle, Laurence. BEARMAN: EXPLORING THE WORLD OF BLACK BEARS. 42 p. $13.95. Scribner, 1989. (ISBN 0-684-19094-X) Grades 4-7. BCCB BKL HB HBG KR

Sattler, Helen Roney. GIRAFFES, THE SENTINELS OF THE SAVANNAS. 80 p. $14.95. Lothrop, 1989. (ISBN 0-688-08284-X) Grades 4-7. BCCB BKL* KR* SLJ*

Seligson, Marcia. DOLPHINS AT GRASSY KEY. unp. $14.95. Macmillan, 1989. (ISBN 0-02-781800-4) Grades 4-6. BCCB BKL HBG SLJ

Showers, Paul. A DROP OF BLOOD. Rev. ed. (Let's-Read-and-Find-Out Science Books) 32 p. $12.89. Crowell, 1989. (ISBN 0-690-04717-7) Grades K-4. HBG SLJ

Simon, Seymour. WHALES. unp. $14.89. Crowell, 1989. (ISBN 0-690-04758-4) Grades 2-6. BCCB BKL HB HBG KR* NYTBR SLJ*

Standiford, Natalie. THE BRAVEST DOG EVER: THE TRUE STORY OF BALTO. 48 p. $6.99. Random, 1989. (ISBN 0-394-99695-X) Grades 1-3. BCCB BKL KR SLJ

Stickland, Paul. MACHINES AS BIG AS MONSTERS. unp. $10.99. Random, 1989. (ISBN 0-394-93913-1) Grades K-3. BKL

Stickland, Paul. MACHINES AS TALL AS GIANTS. unp. $10.99. Random, 1989. (ISBN 0-394-95375-4) Grades K-3. BCCB HBG

Stone, Lynn M. ALLIGATORS AND CROCODILES. (New True Books) 48 p. $9.95. Childrens, 1989. (ISBN 0-516-01170-7) Grades 1-3. BKL

Voeller, Edward. THE RED-CROWNED CRANE. (Remarkable Animal Series) 59 p. $12.95. Dillon, 1989. (ISBN 0-87518-417-0) Grades 3-6. BKL HBG SLJ

Books in a Series

ANIMAL HABITATS SERIES. each 32 p. each $9.95. Gareth Stevens, 1989. Grades 4-6. BKL KR
- THE ANT ON THE GROUND. (ISBN 0-8368-0111-3)
- THE BAT IN THE CAVE. (ISBN 0-8368-0112-1)
- THE EAGLE IN THE MOUNTAINS. (ISBN 0-8368-0113-X)
- THE POLAR BEAR ON THE ICE. (ISBN 0-8368-0114-8)

Bright, Michael. PROJECT WILDLIFE SERIES. each 32 p. each $11.90. Watts, 1989. Grades 4-6. BKL HBG SLJ
- MOUNTAIN GORILLA. (ISBN 0-531-17179-5)
- POLAR BEAR. (ISBN 0-531-17180-9)

Dewey, Jennifer Owings. BIRDS OF ANTARCTICA SERIES. each 48 p. each $15.45. Little, 1989. Grades 6-10. HB KR SLJ
- THE ADELIE PENGUIN. (ISBN 0-316-18207-9)
- THE WANDERING ALBATROSS. (ISBN 0-316-18209-5)

Fradin, Dennis B. NEW TRUE BOOKS. each 48 p. each $9.95. Childrens, 1989. Grades 1-3. BKL SLJ
- EARTH. (ISBN 0-516-01172-3)
- JUPITER. (ISBN 0-516-01173-1)
- MARS. (ISBN 0-516-01164-2)
- PLUTO. (ISBN 0-516-01175-8)
- SATURN. (ISBN 0-516-01166-9)
- URANUS. (ISBN 0-516-01177-4)
- VENUS. (ISBN 0-516-01168-5)

GONE FOREVER SERIES. 8 titles each 48 p. $87.60. each $10.95. Crestwood Hse., 1989. Grades 5-8. KR
- THE ATLANTIC GRAY WHALE. (ISBN 0-89686-458-8)
- THE DODO. (ISBN 0-89686-455-3)
- THE GREAT AUK. (ISBN 0-89686-459-6)
- THE LOST PARROTS OF AMERICA. (ISBN 0-89686-461-8)
- THE PASSENGER PIGEON. (ISBN 0-89686-457-X)
- THE SABERTOOTH CAT. (ISBN 0-89686-462-6)
- STELLER'S SEA COW. (ISBN 0-89686-460-X)
- THE WOOLLY MAMMOTH. (ISBN 0-89686-456-1)

Henderson, Kathy. NEW TRUE BOOKS. each 48 p. each $9.95. Childrens, 1989. Grades 1-3. BKL SLJ
CHRISTMAS TREES. (ISBN 0-516-01162-6)
GREAT LAKES. (ISBN 0-516-01163-4)

Johnson, Sylvia A. NATURAL SCIENCE BOOKS. each 48 p. each $12.95. Lerner Pubns., 1989. Grades 4-8. BKL HBG SBF* SLJ
HERMIT CRABS. (ISBN 0-8225-1488-5)
WATER INSECTS. (ISBN 0-8225-1489-3)

Lepthien, Emilie U. NEW TRUE BOOKS. each 48 p. each $9.95. Childrens, 1989. BKL SLJ
BALD EAGLES. (ISBN 0-516-01160-X)
BUFFALO. (ISBN 0-516-01161-8)
MONARCH BUTTERFLIES. (ISBN 0-516-01165-0)

MORE SCIENCE PROJECTS. 6 titles each 47 p. $74.95. Marshall Cavendish, 1989. (ISBN 1-85435-175-3) Grades 5-8. WLB
ASTRONOMY
COMMUNICATIONS
ELECTRICITY AND MAGNETISM
FOSSILS
HEAT
WEATHER

NATIONAL PARKS SERIES. each 48 p. each $12.95. Crestwood Hse., 1989. Grades 4-6. BKL SLJ
GALAPAGOS. (ISBN 0-89686-434-0)
HAWAII VOLCANOES. (ISBN 0-89686-432-4)
SERENGETI. (ISBN 0-89686-433-2)

Petersen, David. NEW TRUE BOOKS. each 48 p. each $9.95. Childrens, 1989. Grades 1-3. BKL SLJ
APATOSAURUS. (ISBN 0-516-01159-6)
TYRANNOSAURUS REX. (ISBN 0-516-01167-7)

Sanford, William R., and Carl R. Green. TOP DOG SERIES. 8 titles each 48 p. $87.60. each $10.95. Crestwood Hse., 1989. Grades 4-6. BCCB SLJ
THE AMERICAN PIT BULL TERRIER. (ISBN 0-89686-447-2)
THE DALMATIAN. (ISBN 0-89686-449-9)
THE DOBERMAN PINSCHER. (ISBN 0-89686-454-5)
THE ENGLISH SPRINGER SPANIEL. (ISBN 0-89686-453-7)
THE GREYHOUND. (ISBN 0-89686-450-2)
THE OLD ENGLISH SHEEPDOG. (ISBN 0-89686-452-9)
THE SAMOYED. (ISBN 0-89686-451-0)
THE SHIH TZU. (ISBN 0-89686-448-0)

SCIENCE FRONTIERS SERIES. each 45 p. each $12.90. Hampstead Pr., 1989. (Available from Watts) Grades 5-9. BKL SLJ
COMMUNICATIONS. (ISBN 0-531-19508-2)
ENERGY. (ISBN 0-531-19509-0)
OCEANOGRAPHY. (ISBN 0-531-19510-4)
TRANSPORTATION. (ISBN 0-531-19511-2)

Taylor, David. EXTRAORDINARY ANIMALS SERIES. 4 titles each 48 p. $47.80. each $11.95. Lerner Pubns., 1989, 1990. Grades 4-6. HBG SBF SLJ
ANIMAL ATTACKERS: DEADLY FACTS OF THE ANIMAL WORLD. (ISBN 0-8225-2178-4)
ANIMAL MAGICIANS: MYSTERY AND MAGIC OF THE ANIMAL WORLD. (ISBN 0-8225-2175-X)
ANIMAL MONSTERS: FANTASIES AND FACTS OF THE ANIMAL WORLD. (ISBN 0-8225-2176-8)
ANIMAL OLYMPIANS: SPORTING CHAMPIONS OF THE ANIMAL WORLD. (ISBN 0-8225-2177-6)

Wiessinger, John R. RIGHT BEFORE YOUR EYES. each 64 p. each $13.95. Enslow Pubs., 1989. Grades 5-8. KR SBF SLJ
BUGS, SLUGS, AND CRAYFISH. (ISBN 0-89490-264-4)
CATS, BATS, AND BEARS. (ISBN 0-89490-266-0)
FISH, FROGS, AND SNAKES. (ISBN 0-89490-265-2)
FLOWERS, FERNS, AND FUNGI. (ISBN 0-89490-267-9)

Wyler, Rose. OUTDOOR SCIENCE SERIES. each 32 p. each $10.98. Messner, 1989. Grades K-4. HBG SLJ
RAINDROPS AND RAINBOWS. (ISBN 0-671-66346-1)
THE STARRY SKY. (ISBN 0-671-66345-3)

YOUNG DISCOVERY LIBRARY. each 35 p. each $7.95. Childrens, 1989. Grades 2-6. KR PW
BEARS, BIG AND LITTLE. (ISBN 0-516-08286-8)
THE BLUE PLANET: SEAS AND OCEANS. (ISBN 0-516-08287-6)
MONKEYS, APES, AND OTHER PRIMATES. (ISBN 0-516-08990-6)

DUPLICATING MASTERS (FOR TEACHER USE)

PHYSICAL SCIENCES ON FILE. 300 black line masters in 3-ring binder $145. Facts on File, 1989. (ISBN 0-8160-2068-X) (Available from Bemar)

A collection of heavyweight, reproducible black line masters with tables, charts, graphs, and diagrams that serves as a source of information on the physical sciences and of visual material to be used in lectures, presentations, papers, demonstrations, and tests. Masters are divided into sections on units and measurements; force and energy; waves, sound, and light; electricity; electronics; the structure of matter; the chemistry of carbon; changes in matter; patterns in matter: nonmetals; patterns in matter: metals; and chemical reactions. Masters in the appendices provide a diagram of geological oil formation, drawings of chemical apparatus, a blank periodic table, log-linear paper, log-log paper, and linear graph paper. Also included are an index of units and a comprehensive index. All of the masters are clearly drawn and labeled. This collection should be a valuable resource to physical science teachers.

FILMSTRIPS (SOUND)

ANTARCTICA. 1 color filmstrip, 1 cassette tape, guide $43.95. Carolina Biol., 1988. Grades 5-12. Grades 6 and 7: CG 5. Grade 8: CG 3. Biology: CG 7 and 8

An overview of Antarctica with color photographs and narration that document the history of exploring and exploitation in Antarctica and sub-Antarctica. The purpose and the consequences of whaling and sealing expeditions are explained as well as the current emphasis on research and protection of endangered species. Also described are plant and animal life and environmental concerns (such as the overexploitation of krill and fish). The teacher's manual contains only a script and a bibliography. This filmstrip goes into no great depth but is appropriate as an introduction to plant and animal life in Antarctica and as an adjunct to discussions of environmental problems.

Filmstrips (Sound) in a Series

ALL ABOUT TREES. 2 color filmstrips, 2 cassette tapes, catalog cards, 2 guides $67. Natl. Geog., 1990. Grades K-3. Grades K-3: CG 1
TREES AND HOW THEY GROW; HOW TREES ARE USED

Trees as plants and as resources are the subject of these high quality sound filmstrips. "Trees and How They Grow" discusses roots, stems, and leaves; bark; xylem; chlorophyll; photosynthesis; evergreens; seeds and how they are scattered; pollination; and ascertaining a tree's age. "How Trees Are Used" explores the many ways in which trees are vital to humans and other animals, including giving off oxygen, preventing soil erosion, providing the raw material for paper, supplying food, and giving shelter to animals. Also covered are threats to trees, such as insects, drought, fire, air pollution, and population growth (especially as that applies to the destruction of the rain forests). The filmstrip emphasizes the importance of preserving trees. The teacher's guide lists key points and learning objectives and supplies texts for both filmstrips, background information, suggestions for discussion and activities, and a glossary. Teachers will find these filmstrips helpful resources for introduction, enrichment, or review of lessons or units on trees.

AN INTRODUCTION TO PHYSICAL SCIENCE. PART I and PART II. 2 sets each containing 2 color filmstrips, 2 cassette tapes, catalog cards, 2 copies each of 2 guides $120.60. each set $67. Natl. Geog., 1989. Grades 6-9. Grade 6: CG 3. Grade 7: CG 10. Grade 8: CG 8. Physical Science: CG 2 and 6
PART I: FORCES AND MOTION; LAWS OF MOTION
PART II: WHAT IS ELECTRICITY?; WORKING TOGETHER: MAGNETISM AND ELECTRICITY

A series of well-done introductions to the science of the physical world. "Forces and Motion" defines force and motion; explains the difference between weight and mass; discusses types of force (e.g., gravitational and buoyant); discusses potential and kinetic energy; describes speed, velocity, and acceleration; and considers the factors that make an object float or sink in water. Newton's three laws of motion are explained in "Laws of Motion," which also covers friction, mass, acceleration, gravity, momentum, projectiles, and the center of gravity. "What Is Electricity?" describes the atom, static

electricity, lightning, electric current, conductors, batteries, and resistance. "Working Together: Magnetism and Electricity" discusses magnets, magnetic fields, magnetic poles, the relationship between magnetism and electricity, electromagnets, generators, and superconductors. A teacher's guide accompanies each filmstrip and contains a list of key points, a list of learning objectives, background information, the filmstrip text, suggestions for discussion and activities, and a glossary. Teachers should find this series useful for introducing lessons in physical science or for review.

LOOK, LISTEN, EXPLORE: A LOOK AT YOU. 2 color filmstrips, 2 cassette tapes, catalog cards, 2 guides $67. Natl. Geog., 1990. Grades K-2. Grade K: CG 1
FROM HEAD TO TOE; IN TOUCH WITH YOUR SENSES

These excellent sound filmstrips cover basic human anatomy and the five senses. Each one offers students the chance to participate in the learning process rather than simply be passive listeners. For instance, "From Head to Toe" presents much of its material in the form of a rhyming game and wraps up with instructions that allow children to move a bit as they identify different parts of their bodies (e.g., "Scratch your head" or "Clap your hands"). "In Touch With Your Senses" features a game in which children must choose one of four pictures as the correct answer to a question related to the five senses (e.g., "Which of the things pictured do you think would not smell very good?"). The teacher's guide contains an introduction, a list of learning objectives, scripts, instructions for preparing the class to view the filmstrips, background information, and suggestions for related classroom activities. These filmstrips can be used to satisfy classroom needs in more than one area: they are a fine supplement to a science segment but can also be used to encourage thinking skills, help children connect words to objects, and demonstrate rhyming sounds.

LOOK, LISTEN, EXPLORE: ANIMALS, ANIMALS! 2 color filmstrips, 2 cassette tapes, catalog cards, 2 guides $67. Natl. Geog., 1990. Grades K-2. Grades K-2: CG 1
FINS, FEATHERS, FUR: ANIMAL GROUPS
A GAGGLE OF GEESE: SOCIAL ANIMALS

These fine filmstrips introduce children to several animals while encouraging skills basic to all areas of learning. "Fins, Feathers, Fur: Animal Groups" informs students about classes of vertebrates: mammals, birds, reptiles, fish, and amphibians. An identification game at regular intervals in the filmstrip allows students to test their knowledge of the characteristics of these different groups (children should enjoy flapping their arms to identify a bird or saying "ribbit" to point out an amphibian). Rhyming riddles for which students must supply the last word provide activity in "A Gaggle of Geese: Social Animals," which covers wolves, geese, elephants, ants, penguins, and prairie dogs. Both filmstrips end with activities that review and reinforce the information presented. The teacher's guide provides an introduction, a list of learning objectives, texts for both filmstrips, viewer preparation, background information, and suggested classroom activities. Appropriate introductory, supplementary, or review material that also allows students to practice the skills of listening, comparing, classifying, and recognizing rhyming words.

LOOK, LISTEN, EXPLORE: READY, SET, GO: HOW ANIMALS MOVE. 2 color filmstrips, 2 cassette tapes, catalog cards, 2 copies each of 2 guides $67. Natl. Geog., 1989. Grades K-2. Grades K-2: CG 1
SWIMMERS AND FLIERS
CRAWLERS, RUNNERS, AND HOPPERS

With excellent photography and narrative based on sound educational principles, these filmstrips help students learn to observe, compare, and classify the ways animals move. "Crawlers, Runners, and Hoppers" looks at snails, walruses, Komodo dragons, millipedes, starfish, sidewinders, horses, pronghorns, cheetahs, camels, ostriches, basilisk lizards, kangaroos, kangaroo rats, leopard frogs, arctic hares, jumping spiders, and mountain lions. "Swimmers and Fliers" covers whales, sharks, penguins, octopuses, water boatmen, otters, ducks, flying squirrels, bats, monarch butterflies, peregrine falcons, and hummingbirds. The approximately six game sections on each filmstrip involve students in synthesizing and recalling information. Repeat frames provide context clues for children as they guess the correct answer. The teacher's guide with each filmstrip contains an introduction with a list of skills addressed, ways to prepare children to view the filmstrip, the text of the filmstrip, background information, and suggested activities. Highly recommended for early elementary use in science units and in encouraging thinking skills.

LOOK, LISTEN, EXPLORE: WHO LIVES HERE? PART I AND PART II. 2 sets each containing 2 color filmstrips, 2 cassette tapes, catalog cards, 2 guides $120.60. each set $67. Natl. Geog., 1990. Grades K-2. Grades K-2: CG 1
PART I: ANIMALS IN BACKYARDS; ANIMALS IN AND AROUND PONDS
PART II: ANIMALS OF THE SEA; ANIMALS IN THE DESERT

These participatory filmstrips introduce a wide variety of animals and their habitats while encouraging listening and thinking skills. Each filmstrip contains several rhyming riddles to which children are to respond after several animals have been introduced. Of four animals pictured, students choose the one the riddle describes. "Animals in Backyards" uses the term backyard rather loosely to cover city parks, suburban yards, rural areas, and desert terrain. Viewers see such animals as ants, lightning bugs, squirrels, pigeons, earthworms, bees, birds, turtles, roadrunners, coyotes, spiders, and elk. "Animals In and Around Ponds" includes looks at dragonflies, kingfishers, blue herons, frogs, beavers, loons, various types of fish, crayfish, and ducks. Some of the stars of "Animals of the Sea" are sea turtles, starfish, gulls, penguins, walruses, blue-footed boobies, whales, jellyfish, sea anemones, and sea slugs. Different ways of coping with desert dryness are demonstrated in "Animals in the Desert" by such animals as red kangaroos, fennec foxes, prickly lizards, meerkats, snakes, tortoises, camels, beetles, and kangaroos. Teacher's guides provide an introduction, a list of learning objectives, texts of the filmstrips, instructions for preparing students to view the filmstrips, background information, and suggestions for classroom activities. These high quality filmstrips along with the valuable suggestions in the guide will enrich the science curriculum while helping children develop the more general skills of effective listening and recall of information.

A WORLD OF WATER. 2 color filmstrips, 2 cassette tapes, catalog cards, 2 copies each of 2 guides $67. Natl. Geog., 1989. Grades 5-8. Grade 5: CG 4 and 5. Grade 7: CG 7 and 8

EARTH'S LIFELINE; WATER, WATER, EVERYWHERE?

A look at facts about water and its importance to the earth and to human beings. "Earth's Lifeline" explains how water works in our bodies, why civilizations developed around rivers, irrigation, hydroelectric power, and water use by factories. It also defines surface water and groundwater, describes the hydrologic cycle, discusses the three states in which water appears on earth (liquid, solid, and gas), and explores the role of water in weathering and erosion. "Water, Water, Everywhere?" describes the distribution of water on our planet, ways in which different areas have coped with water scarcity, some consequences of water diversion, water purification, various causes of water pollution, acid rain and the problems it creates, efforts to clean up polluted water, and ways to conserve water in industry and at home. The guide for each filmstrip provides a list of key points, a list of learning objectives, background information, a script, suggestions for discussion and activities, and a glossary. Appropriate as introduction or review, these filmstrips can be a valid part of a discussion of water, pollution, and conservation, especially if the guide's suggestions are followed.

STUDY PRINTS

SCIENCE STUDY PRINTS. 15 sets each containing 6 study prints (18" x 13") each set $19.95. SVE, 1988. Grades K-3. Grades K-3: CG 1

ANIMALS ON THE GO; ANIMALS THAT HELP US; ANIMALS THAT NEED OUR HELP: AROUND THE WORLD; ANIMALS THAT NEED OUR HELP: NORTH AMERICA; BIRDS, NESTS, AND BABIES; BIRDS OF THE CITY AND SUBURBS; A CORAL REEF COMMUNITY; A DESERT COMMUNITY; A FOREST COMMUNITY; A FRESHWATER POND COMMUNITY; PLANTS ADAPT AND SURVIVE; SURVIVAL: ANIMAL CAMOUFLAGE; SURVIVAL: ANIMAL DEFENSES; URBAN WILDLIFE; WHEN ANIMALS GET HUNGRY

Each series of study prints features a different group of animals and portrays a representative animal from the group in a full-color, poster-size, usually closeup photograph of the animal in its native habitat on one side of the print with information on its characteristics and behavior, study questions, and activities for students on the reverse side. Children will enjoy the interesting observations and bits of advice for them about each of these creatures. Most of the lesson content on the reverse sides of the prints appeals to the young child's curiosity and to cultivating humane instincts and behavior toward other life forms. Concern for the environment in which these animals dwell is a dominant, attractive emphasis, stressing the need for human sharers of the earth to protect animal life and habitats whether they be rural, urban, or remote from population centers. Many myths and untruths about the less popular species are repudiated--e.g., snakes are not seeking ankles to bite but are as anxious as human beings to avoid contact. Permission is granted to reproduce the content of the lessons and activities, which are simple, appealing suggestions. These sturdy, laminated prints offer a wide variety of uses for K-3 teachers.

VIDEOCASSETTES

BACKYARD BUGS. 1 videocassette 15 min. guide VHS $59.95. Natl. Geog., 1990. Grades K-3. Grades K-3: CG 1

A young boy beginning his summer vacation explores his backyard and learns some fascinating things about bugs. Rap music brings viewers into the subject as they watch the boy learn how to recognize an insect, a spider, harvestmen, centipedes, millipeds, and crustaceans. He finds out where some of these bugs can be found. Also explained is the process of metamorphosis. Narration describes how to take care of a bug if you catch it, although children are encouraged to release the bugs as soon as possible. A review in rap form brings everything together at the end of the video. Students should be fascinated by the magnificent closeup shots of bugs and should find this video a helpful step towards learning the various types of bugs and their body parts. This is an excellent choice for science collections.

THE BENEFITS OF INSECTS. 1 videocassette 17 min. guide VHS $69.95. Natl. Geog., 1990. Grades 4-6. Grade 4: CG 2

A young member of a summer Bug Club learns about some of the reasons insects are important to our world. She discovers, for instance, that tiny mites in the soil help oxygen circulate through it and also help fertilize it. She also learns about pollination and how insects function in the ecosystem. Observation teaches her about the process of metamorphosis. The teacher's guide provides a synopsis of content, a list of learning objectives, vocabulary words with definitions, and suggestions for related activities. Superb photography and interesting presentation of material should keep students' attention on this informative video, and suggestions in the teacher's guide provide help in integrating the video into the curriculum.

THE DELICATE BALANCE: UNDERSTANDING HUMAN HEALTH THROUGH BIOTECHNOLOGY. 1 videocassette 28 min. guide VHS $250. New Dimen. Media, 1988. Grades 10-12. Biology: All competency goals

An engrossing overview of biotechnology, this presentation discusses scientific advances in the treatment of hemophilia, heart disease, hairy cell leukemia, and AIDS through interviews with doctors, research scientists, academicians, and patients. On-site photography depicts a heart attack victim in emergency and follow-up treatment, a hemophiliac child helping his mother administer medicine, an AIDS patient responding to his doctor, and a leukemia patient rebounding from symptons which once meant certain death. Emphasized are the great strides made in laboratories toward understanding and conquering deadly human ailments and the equally challenging work yet to be done. Computer-generated animation as well as photography explains the process of DNA and monoclonal antibody techniques in the quest for health solutions. The film is an excellent introduction to the sophisticated role of biotechnology in areas of human health. Biology classes at all levels of achievement will find the content and the spokespersons more than routinely interesting. A thorough guide for teachers is up-to-date and instructive over and beyond the videotape's focus.

EVIDENCE FOR THE ICE AGE. Rev. 1 videocassette 12 min. guide VHS $255. Ency. Brit., 1988. Grades 7-12. Grade 7: CG 7. Grade 8: CG 4

The signs left by the Ice Age glaciers moving over the earth are the major subject of this video. Such evidence as isolated boulders and long, parallel scratches on rocks is considered. Other effects of moving glaciers are discussed (e.g., erosion and creation of valleys), time-lapse photography shows the movement of a glacier, and an experiment demonstrates that ice at the center of a glacier moves faster than ice at the edges. A brief guide sheet summarizes the program's contents, lists terms and concepts considered (e.g., orbital stretch, moraine, wobble, eddy, and the astronomical theory of ice ages), and provides a few study questions. This is an informative exploration of glaciers past and present and their impact on our earth.

EXPLORING OUR SOLAR SYSTEM. 1 videocassette 20 min. guide VHS $79.95. Natl. Geog., 1990. Grades 4-6. Grade 4: CG 5

Viewers take a journey from the center of the solar system to its outer limits. The excellent explanation of how scientists use the telescope and other instruments to record information begins at Kitt Peak National Observatory where a scientist discusses her work. Footage of visual images brought to Earth by satellite and telescope, along with artists' illustrations and animation, will help students form a mental picture of the relative sizes within our solar system. Scientific work in progress at observatories is emphasized to help students understand that discoveries are constantly being made, that our knowledge about our solar system is not static. The teacher's guide contains a summary of content, a list of learning objectives, vocabulary with definitions, and suggestions for related activities. This highly recommended video is a good introduction to a more detailed study of the planets and other bodies.

MAGICAL MOTHER NATURE: THE FOUR SEASONS. 1 videocassette 18 min. catalog card kit guide VHS $89. Rainbow Ed. Video, 1989. Grades K-3. Grades K, 2, and 3: CG 3

Beginning with spring this live-action video explores the characteristics of each season as well as the typical changes that occur between them. Topics addressed include weather, length of days, plant and animal life, and recreation. In addition to the narrator's voice, the voices of different children are heard naming associations they have with each season. The teacher's guide contains an introduction to the program, a summary of its content, review questions with answers, suggestions for activities and discussion questions, a script, and a bibliography. A separate reproducible sheet provides a multiple-choice quiz in cloze format. These ancillary materials help make the program a useful resource for teachers preparing a lesson or unit on the seasons of the year.

OUR IMMUNE SYSTEM. 1 videocassette 25 min. guide VHS $99.95. Natl. Geog., 1988. Grades 9-12. Biology: CG 4

The human immune system is the focus of this live-action video that explains how the immune system protects the body from disease and describes some of the enemies of the immune system, such as bacteria, viruses, and parasites. Some of the vocabulary and concepts defined in the program are antibodies, antigens, immunity, macrophages, phagocytes, mucous membranes, immunological memory cells, autoimmune disease, and AIDS. The teacher's guide contains a

summary of content, a list of learning objectives, a vocabulary list with definitions, definitions of several imaging techniques (e.g., macroscopic photography, fiber-optic endoscopy, and electron microscopy) used to explore the internal processes of the human body, and suggestions for related activities. Teachers and students will find this video a well-made, informative overview of the immune system and its strengths and vulnerabilities.

TEETH: THE BETTER TO EAT WITH. 1 videocassette 15 min. guide VHS $59.95. Natl. Geog., 1990. Grades K-3. Grades K-2: CG 1

This live-action video looks at the many ways that teeth, especially animal teeth, are used. A scientist shows children skulls, jaws, and teeth from different animals and explains how the shape of the teeth tells what the animals ate. She also describes some of the different kinds of teeth. The program also defines the terms herbivore, carnivore, and omnivore. Other uses for animal teeth (besides eating), such as fighting and communicating, are explored. A dental hygienist shows a group of young children the proper procedure for brushing their teeth. A good oral summary of the video's content is provided to reinforce learning. The accompanying teacher's guide contains a synopsis of the program's content, a list of learning objectives, a vocabulary list (with definitions), and suggestions for related activities. This excellent video is a fine introduction to the form and function of teeth, both animal and human.

WHAT MAKES CLOUDS? Rev. 1 videocassette 15 min. guide VHS $295. Ency. Brit., 1988. Grades 7-12. Grade 7: CG 8. Earth Science: CG 6

Fascinating time-lapse photography of clouds forming and several clearly presented experiments (e.g., showing how air temperature affects how much water it will hold and making a bottled cloud in a laboratory) contribute to making this exploration of cloud formation interesting and informative. The necessary components for cloud formation are described and explained. Fog formation, effects of high altitude, evaporation, condensation, and the role of clouds in the weather are some of the other topics addressed. A guide sheet provides a brief summary of the content, program objectives, and several discussion questions. This video is a suitable introduction to the study of clouds or a useful supplement to discussions of weather.

WIND AND WHAT IT DOES. Rev. 1 videocassette 12 min. guide VHS $195. Ency. Brit., 1988. Grades 2-4. Grade 2: CG 3. Grade 4: CG 4

This program begins by showing the things that wind can do and goes on to explain how heat makes wind. It describes hurricanes, tornadoes, gale winds, and dust storms and also shows how meteorologists use various instruments (e.g., balloons and wind vanes) for measuring the wind. This video is a sound and appropriate introduction to its topic and could also serve as reinforcement for a classroom discussion.

Videocassettes in a Series

MR. WIZARD'S WORLD: SCIENCE VIDEO LIBRARY. 20 videocassettes guides VHS $1,350. each $90. Merrill, 1988. Grades 4-8. Grades 4-6: CG 3. Grade 7: CG 11 and 12. Grade 8: CG 5, 7, and 8

TAPE 1: SIMPLE MACHINES. 24 min.
TAPE 2: INERTIA. 15 min.
TAPE 3: GRAVITY. 20 min.
TAPE 4: ACTION AND REACTION. 18 min.
TAPE 5: PRESSURE. 26 min.
TAPE 6: FLUID FLOW. 19 min.
TAPE 7: BUOYANCY AND DISPLACEMENT. 24 min.
TAPE 8: LIGHT REFLECTION. 16 min.
TAPE 9: LIGHT REFRACTION. 25 min.
TAPE 10: LIGHT INSTRUMENTS. 19 min.
TAPE 11: SOUND INSTRUMENTS. 20 min.
TAPE 12: HEAT TRANSFER. 19 min.
TAPE 13: HEAT: MISCELLANEOUS TOPICS. 16 min.
TAPE 14: STATIC AND HIGH VOLTAGE ELECTRICITY. 27 min.
TAPE 15: CURRENT ELECTRICITY. 25 min.
TAPE 16: CHANGE OF STATE. 25 min.
TAPE 17: CHEMISTRY IN THE KITCHEN. 25 min.
TAPE 18: CHEMICAL TESTS. 23 min.
TAPE 19: CHEMICAL REACTIONS. 16 min.
TAPE 20: COMBUSTION. 28 min.

Selections from the "Mr. Wizard's World" television program have been grouped by topic to create a series of twenty videocassettes, each containing several experiments. In each segment of a tape, Mr. Wizard explains and demonstrates a scientific principle to a child, who is usually an active participant in the demonstration. For the most part Mr. Wizard uses common materials that help children see the relationship between science and everyday life. A teacher's guide accompanies each video (the guide for the review copy of volume 1 was missing). Each guide contains an introduction with safety warnings; general background for the scientific principle addressed; a list of suggested reading for students; one to three reproducible worksheets with experiments, projects, or enrichment activities (some integrate science with another subject such as art); and answers for the worksheet activities. Some also discuss careers in science. For each segment of the video, the guide provides the concept demonstrated, a summary of the segment's contents, a list of materials for the video activity, the segment's objective, an explanation of the concept, a vocabulary list, teaching suggestions, a follow-up activity, and a description of how the concept addressed in the segment works in our daily lives. A warning at the beginning of each tape indicates that none of the experiments shown by Mr. Wizard should be done without adult supervision. Some of them can be dangerous (e.g., those that use flames), and many require some knowledge of safety procedures. Safety precautions also appear in the teacher's guide; a few state that the experiment should not be reproduced even in the classroom. (Mr. Wizard points out most, but not all, of the safety hazards.) These fascinating programs are suitable for enrichment and review and may be especially helpful in schools without sufficient equipment and materials to demonstrate a variety of scientific concepts.

DIRECTORY

Atheneum - Atheneum Publishers, 866 Third Avenue, New York, New York 10022

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Carolrhoda Bks. - Carolrhoda Books, Inc., 241 First Avenue North, Minneapolis, Minnesota 55401

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